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January 1987

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AMSTRAD COMPUTER USER

The official magazine for all users of Amstrad computers

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Tel: 0277-234459 (Editorial); 0277 234434 (Advertising)
Telecom Gold: 72:MAG021

Published by Avralite Ltd, 36/38 St. Petersgate, Stockport SK1 1HL.

News trade distribution: Diamond-Europress Sales & Distribution Ltd, Unit 1, Burgess Road, Ivyhouse Lane, Hastings, East Sussex TN35 4NR. Tel: 0424 430422.

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Amstrad PC drafted, educated and cooled

The Amstrad PC has been ordered by the Royal Military College of Science. The 100 twin drive PCs will be used as stand alone systems to train officers for senior technical positions.

The price, power and the Amstrad name for reliability were all factors which the college saw as being important when deciding on the 1512.

It was the price of the PC that also appealed to Aston University. They feel that the £399 model is within reach of impoverished students. It provides the power of IBM and Apple computers which would offer the same facilities but at many times the cost.

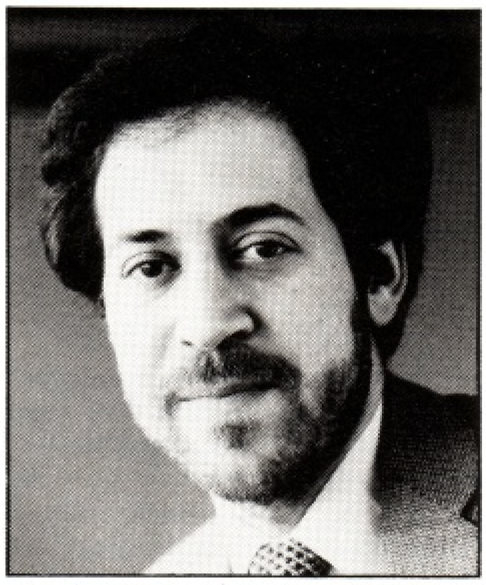
Aston is particularly interested in using the PCs to run spreadsheets, terminal software and UCSD-Pascal. The VT100 terminal software will link the computers to the university computer centre which has several large DEC machines.

The first batch of PCs has been delivered to some lecturers with the eventual aim of a computer for every lecturer and administrator.

Despite the large corporate orders for floppy systems Amstrad has been surprised by the percentage of users who have opted for the hard disc systems.

Initial predictions expected the more expensive computers to account for only 20 per cent of sales, but actual figures run closer to 45 per cent, so Amstrad has second sourced hard drives from the old man of the disc industry, Tandon.

Minor changes have been made to the standard Tandon design – the front panel has been changed from black to Amstrad PC beige. Amstrad has adopted a new disc controller from Western Digital and has again improved the design to give better error messages. There will be no apparent difference to users between the new Tandon and old Xebec models, but the new sourcer should mean that hard disc machines will be easier to buy from now on.



Malcolm Miller: "We know a fan is unnecessary, but . . ."

The Amstrad PC gets hot. How hot is a matter for debate, it depends on which cards you put into it and how much power they draw.

The important question is does the machine get too hot? After all, every computer generates a bit of heat, especially from the power supply (The Commodore 64 power supply is great for warming your toes on – Ed).

But the Amstrad PC does not overheat. Amstrad is certain of that. Unfortunately not everybody believes that and so some large customers have insisted that the computer does overheat.

Whatever the truth, Amstrad has decided to offer a German-made electric fan free with all hard disc machines and as a £20 extra with floppy disc-based computers.

This is described by Amstrad's marketing director Malcom Miller as a marketing tactic. He says: "Amstrad has simply decided to satisfy those potential customers who feel more secure with an integral cooling system. We know that a fan is unnecessary but recognise the commercial sense in satisfying all our customers and their specific needs".

Alan Sugar was a little more direct in his feelings about fitting a fan. He described it as a waste of money and recommended that operators switch the fan off. "It'll save on electricity and won't make any difference to the operation of the machine". He told the Financial Times: "If it's the difference between people buying the PC or not we'll stick a bloody fan in it. If they say they want bright pink spots on it, I'll do that too. What's the use of me banging my head against a brick wall and saying You don't need a damn fan, sunshine!".

MicroProse for the Amstrads

MicroProse, the number one developer of simulation software for the home computer in the USA, has announced its first titles for the Amstrad range.

It has launched two of its most famous packages, Silent Service and AcroJet, for the CPC machines. Both are priced at £9.95 on cassette and £14.95 on disc.

Silent Service is a simulation of World War II submarine combat in the Pacific, while AcroJet recreates the thrills of flying a one man 200 mph plus acrobatic aircraft.

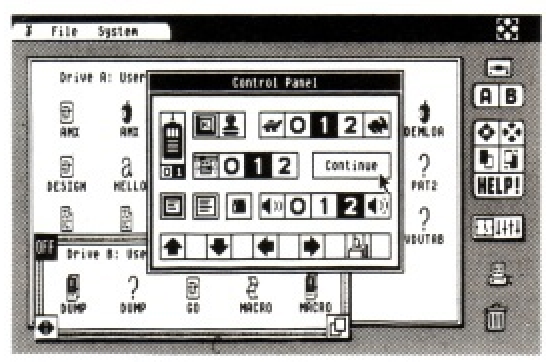
Also in the pipeline is F-15 Strike Eagle, one of the MicroProse epics which has lifted the company to the number three spot in the United States entertainment software league.

On the PC1512 front, six MicroProse titles have become available ranging from Spitfire Ace to Crusade in Europe, priced from £17.95 to £24.95.

The news that MicroProse is to market titles for the Amstrad machines is being seen as yet a further acknowledgement of Alan Sugar's success story.

For MicroProse produces only a handful of titles each year, spending up to $1 million developing each to guarantee it will be a blockbuster.

AMX works on MAX



Advanced Memory Systems has a new product due before Christmas. Max is a Gem-style front end for the CPC. This makes controlling the mouse, sound, graphics mode and file manipulation a doddle.

The screen can be dumped to an Epson-compatible printer and there is a Help and note pad facility. When it is available the software will cost £19.95 and be a disc-only program. The author of the program, Chris Honey wrote the Commstar rom for Pace and has worked for Amstrad.



GIS is a box

General Information Systems (GIS) of Cambridge has launched an Amstrad interface for their Red Boxes. This is a system which uses the mains electricity network in a house to link various sensors.

There are three boxes. Red One, Red Two and Red Leader. Red One is a switch to turn any electrical device on or off. Red Two is a heat sensor, capable of detecting intruders and Red Leader is the brains of the system. It can be programmed in its own version of Basic and then be disconnected from the CPC. Guess what colour they are. Yup, Habitat red.

ACU will have a full review next month.

PCW experts guide

CP Software, famous for its bridge and chess programs, has published a book on the Joyce. With the incredibly snappy title of All you ever wanted to know about graphics, the universe and everything on the 8256/8512 but were afraid to ask, it costs £19.95. (Worth that for the title alone – Ed).

It tells you how to "create devastating graphics output including fast, smooth sprites" and "discover facts about the PCW only selective software houses know". You can get details from CP Software on 01-272-2918.

Competition winners

Winners of our Compumart Colour Telly Competition in September's ACU who collect an Amstrad 14in colour TV are: G.H. Jones, Leicestershire; Mr F. Curran, Cheshire; K. Hankin, Aldridge.

Runners up who each win two discs are: S. Leak, Bristol; N. Gore, Liverpool; M. Bayliss, Wokingham; J.H. Richards, Scunthorpe; John Matthews, Leeds; Nicholas Drew, Swansea; H. Richard, Ripon; F. Richards, Milton Keynes; John Bell, Cornwall; Paul Bishop, Swindon; N. Timms, Stranraer; Chris Middleton, Nottingham; Ewen Flint, Dumfries; J.S. Milne, Glasgow; J.J. Dolan, Ely; R.W. Shillitoe, Ilkley; I. Emmerson, Kent; Karen Wright, Clacton; Paul Murphy, London; Shaun Bourne, Oldham; D.R. Clowser, Colwyn Bay; Mr K. Johnson, Nottingham; D. Scrivens, Northampton; Peter Robinson, Moffat; Andrew Shepherd, Sutton Coldfield.

Winners of the September Rainbird jewellery competition: David Hall, Manchester, (£125 jewellery voucher); John Bell, Cornwall, (£50 voucher); John Bunyan, Devon, (£25 voucher).

Winner of the Firebird Comet Competition, May, *ACU,* Gary Loughran of Belfast collects a telescope.

Runners-up, who each win a silver game of their choice: David Bennett, W. Yorks; S. Winpenny, W. Yorks; R. Donne, Dorset; M. Slade, Kent; Jason White, Kent; Simon Lord, Lancashire; Gareth Ede, York; B. Whitten, Nottingham; William Fox, Derbyshire; Graham Phelps, Chippenham; I. Williams, Manchester; Pen Poulsen, Denmark; R. Holt, Devon; C. Skoczek, Mid-Glamorgan; Mrs Forbes, Ayrshire; Matthew Noble, Farnham; B. Gentle, Milton Keynes; M. Sutton, Bishopston; Ewen Flint, Dumfries; Conor Larkin, Limerick.

Winner of CDS PC1512 Competition: Mike Douglass, Gateshead. Runners-up, who win a CDS game of their choice: Ricardo Maragna, Cardiff; Susan Jones, Crewe; Michael Elaias, Letchworth; Mr. A. Golightly, Stocksfield; R. Kilian, Gosport; Merrick Pimm, Tipton; Carl Ayscough, Mexborough; Michael Cheeseman, Southampton; Ben Jenkins, Aylesbury; Mr A. Croucher, Tonbridge.

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256K SILICON DISC





This is the fastest storage system available for Amstrad CPC computers and is compatible with CPM 2.2, CPM+ and all DK'Tronics peripherals including the 64K/256K memory expansions. When used with CPM+ and our 256K memory the edition disc capacity is a massive 442K (more than the PCW 8512 Ram Disc). It automatically logs on as drive B or drive C in two drive systems and does not require extra power supply.

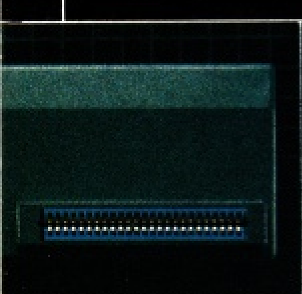
The 256K Silicon Disc is designed to be used with at least one normal disc drive attached. When fitted the directory uses 2K thus leaving 254K for storage, over 70K more than the normal discs.

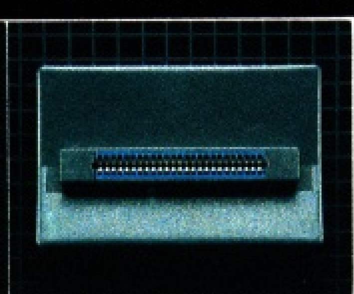
Data and programs can be exchanged between the Silicon Disc and a normal disc, application programs can then work on the data at vastly increased speed especially on systems with only one normal drive.

Software is contained in an expansion ROM and there are two environments in which the Silicon Disc can be used, BASIC under AMSDOS where all the normal AMSDOS commands are fully supported LOAD, SAVE, MERGE, CAT etc and within CP/M 2.2 CP/M+ where commercial programs are designed to run on multi drive systems.

£99.95 including VAT (464 and 6128)

64K and 256K MEMORY EXPANSIONS





The memory expansions increase the Amstrad 464's internal memory to give a total of 128K or 320K. The 621's memory is increased to 320K. It is compatible with all DK'Tronics peripherals including the 256K Silicon Disc.

It is supplied with bank switching RSX software (464 software on cassette 6128 on disc.

The software adds some BASIC commands which makes it possible to use the second 64K (or 3rd or 4th and 5th in the case of 256K) for storage of screens, windows, graphics and basic arrays. This ability means that you can write much larger basic programs and sophisticated programs that use pull-down menus with ease.

With an expansion fitted on the 464 it then has the same memory configuration as the CPC 6128. It will then run CPM+ with its massive 61K T.P.A. area, opening up an even larger software base to 464 users. When using either of the expansions with CPM 2.2 on the 464 and 6128 computer the T.P.A. is increased to 61K.

The RAM is accessed by means of bank switching using a single I/O port. Memory is actually switched in and out of the 64KZ80 address space in 16K sub blocks (as are the ROMS). The port determines which particular combinations of the original four 16K sub blocks and any new sub blocks from the expansion RAM will occupy the 64K address space at any time. All of this switching is done automatically by the software supplied.

The contents of the expansion RAM are retained if the computer is reset and if the RAM is used for machine code the contents will remain even if the computer crashes.

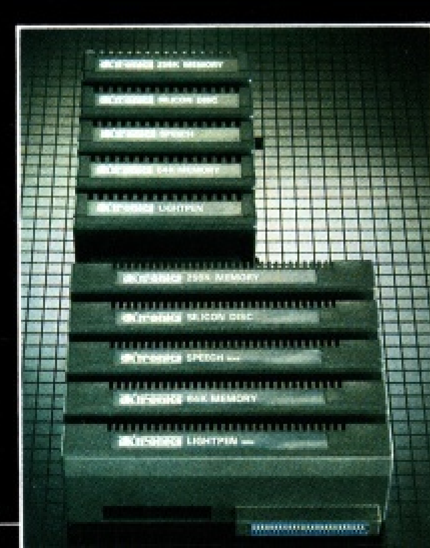
64K **£49.95** including VAT (464 only)
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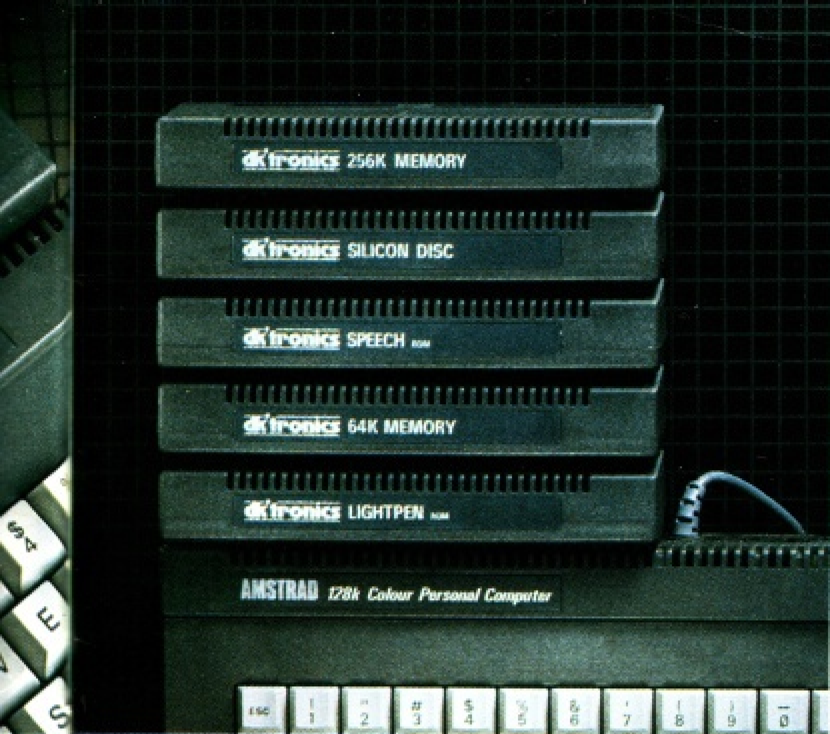




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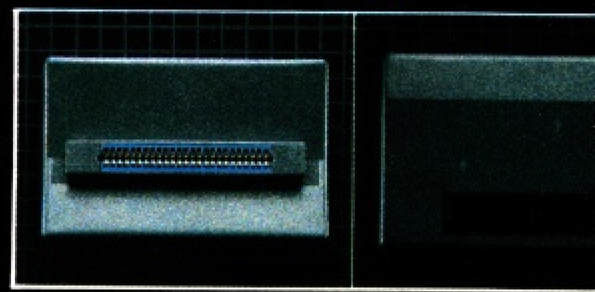




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There is picture storage and retrieval, and a pen callibration utility and there is also an Amstrad/Epson compatible printer dump utility supplied on cassette.

There is a cassette version for the 464 and a ROM version for the 464 and 6128.

Cassette **£19.95** including VAT (464 only)
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This simple to use speech synthesiser includes a powerful stereo amplifier and two high quality speakers which greatly improves the sound quality of the internal mono speaker.

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It is supplied with a text to speech converter software for ease of speech output creation. Everything you wish to be spoken is entered in normal english without special control codes or characters making it extremely easy to use.

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There is a cassette version for the 464 and a ROM version for both the 464 and 6128.

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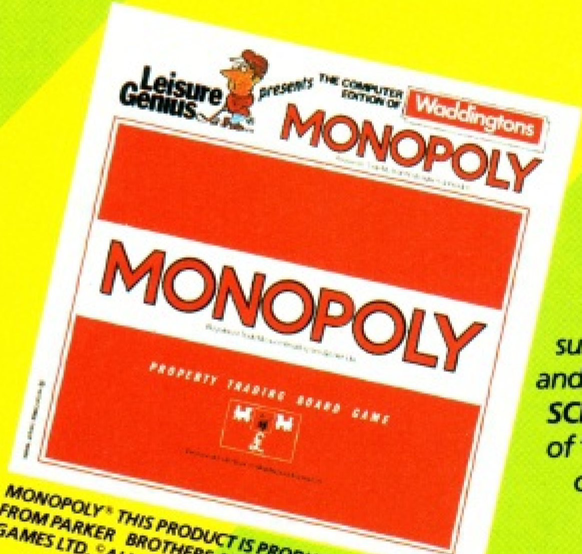
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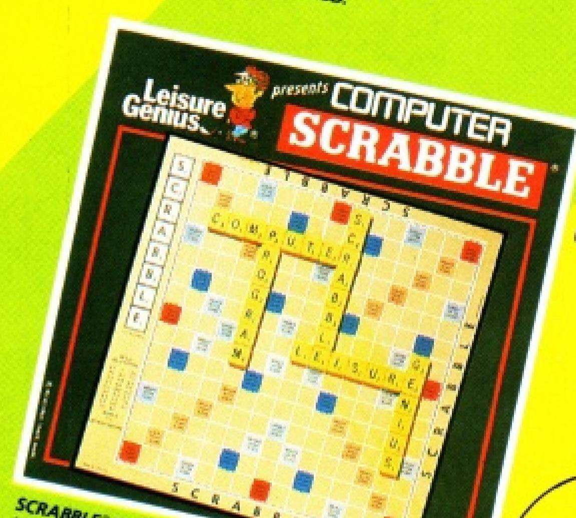


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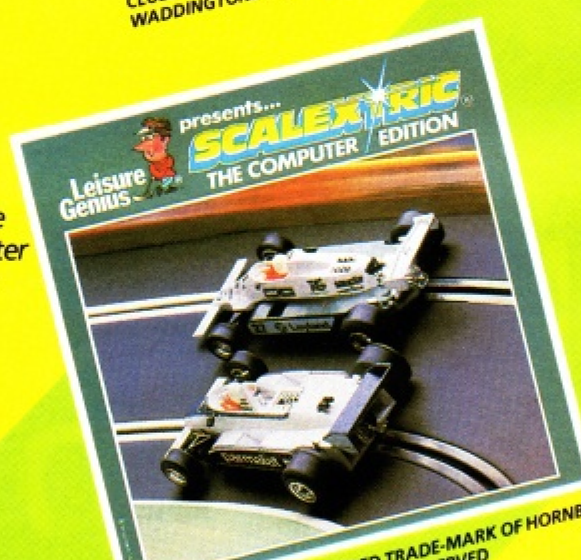
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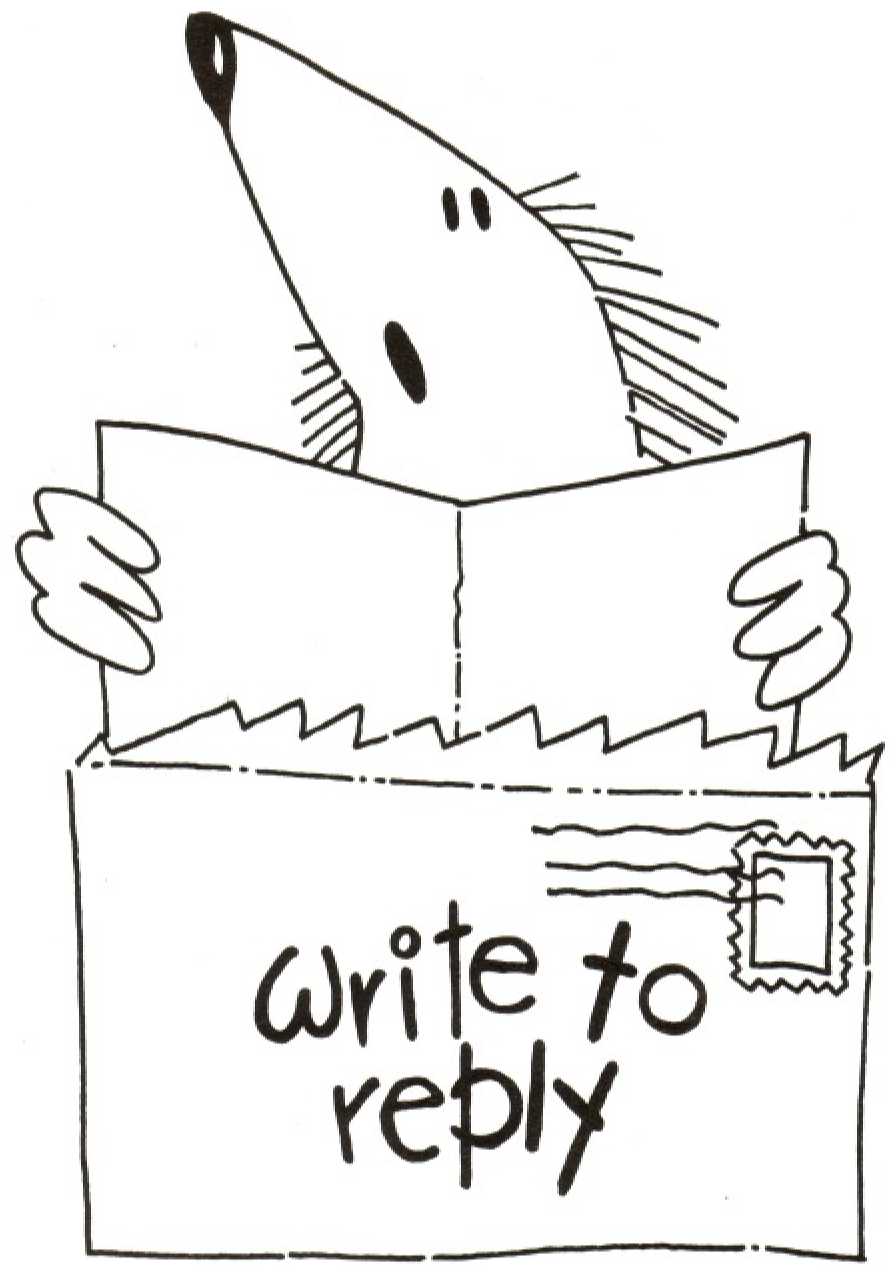
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A = £9.95 B = £12.95 C = £14.95
D = Not available yet, but coming soon! E = £15.95

Please bear in mind that the views expressed herein are not necessarily those of Amstrad. Be assured that all your views are given thorough consideration. This letters section is the Amstrad Computer User's own forum.



Not Spooked

Just a short letter to say how impressed I am with your great magazine.

I was especially impressed with the Roland in the Haunted House game so could we please have many more machine code routines and games? No matter how boring it is typing them all in, they're worth it.

J.E. Knight,
Penryn,
Cornwall.

ACU: *Thanks for the compliment – it's good to know that you enjoy playing the games we list.*

Flipside fiddle

I have bought a copy of Incentives GAC. It is an excellent product and deserves to sell very well.

But I have one criticism – the disc is one sided! When I pay £27 for a piece of disc software I expect it to be double sided.

Why do software companies charge so much for their programs when they are using cheap one sided discs?

Part of the high price may be because of piracy, but I have a sneaky feeling the software companies are cheating us out of a few quid.

One reason why I buy disc versions of the games'software is so that I can use part of the free disc to store my own programs on.



With one sided discs this is not possible without the risk of overwriting the original software.

Also what if you erase/damage one side of your disc? With a normal disc, you can still play the game but with a one sided disc, you've had it!

Shouldn't something be done about these one sided discs?

Jason Anderson,
Swansea.

Which Amstrad?

I am very interested in the Amstrad range of computers and the available expansion peripherals. However, I have several questions about the machines.

a) Will The Pawn by Rainbird Software work on CPC464 with 64k memory expansion?

b) In what ways, apart from memory and disc drive, do CPC 464 and CPC 6128 differ? Why are certain programs not compatible on other machines?

c) How good is the Mallard Basic? Will it make the PCW machines more "home and personal" rather than "business-like"?

d) So far, almost all programs for PCW machines are for business purposes. Is it likely that more entertainment and games programs will be created in the future for these versatile machines?

e) How much do Amstrad printers cost and which model is best suited for word processing and graphics dumps?

Amir Haji Latip,
Brunei,
Darussalam.

ACU: *a) The Pawn should work with extra ram and a disc drive but as we write the program is unfinished so we'll have to wait to find out.*

b) The differences mainly concern the rom. There are new routines (which were also in the 664) to give disc error numbers, enhanced graphics and lose a few bugs along the way. For the sake of compatibility with existing software not very much was changed.

c) Mallard Basic is excellent if you want to write database programs, accounting suites or anything with a serious bent. It is a real pain to use if you want to produce graphics or write simple games, so it won't make a PCW any less businesslike.

d) Yes and no. There will be more entertainment software for the PCW but it is still considered a business machine so there will not be the usual deluge of software at Christmas.

e) The DMP 2000 for £169.95.

ANNOUNCING

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Overseas outcast?

You know something? We overseas as you like to call us, can get real mad with you Englishmen.

Why we don't like you is because you almost always set up competitions for people only in the UK. The same with your clubs.

Either you should stop selling your magazines outside Britain or also open clubs and competitions to us.

I once tried to join the Amstrad club, but was told politely to go to a warm place.

I found the folder in a shop in Northern Norway. What was it doing there?

Thomas Moe (A mad Norwegian),
Tverlandet, Norway.

ACU: *Since all major countries have Amstrad distributors it is they who should be setting up local user clubs to cater for users in their own language.*

Whenever possible we allow overseas readers to enter competitions but obviously have to restrict those contests where the prize is too large or fragile to send.

Silent fourth

I recently had a lead made up by a qualified electrician to connect my 6128 to my stereo.

On using this lead the sound was greatly improved, but for the fact that channel 4 was very quiet. I changed the lead but the problem persisted.

Is this meant to be, and if not does Amstrad (or anyone else) sell the correct lead?

Emma Goldman,
Brighton.

ACU: *I thought that a CPC only had 3 channel sound.*

Arnold to Airo upgrade

I knew about the Amstrad's new PC months ago and I was impressed when I read the review, but I have a few questions about the PC.

a) I have the Amstrad CPC 664 and when I buy the new Amstrad will I miss all my old programs? Is it possible to use old Basic programs?

b) If I buy a version with one or two disc drives, is it possible to connect a 3in disc drive?

c) Is it possible to connect a cassette player?

Vidar Vorland Pendersen,
Norway

ACU: *a) For all practical purposes it will not be possible to convert Locomotive Basic programs to run under Basic2. It would be easier to rewrite them. Machine code stands no chance.*

b) You could add a 3in disc to a PC but it would have no great advantage since all PC software is on 5.25in discs.

c) We're sorry – the short answer is no.

No games for me

On page 69 of the *ACU* you compare the PC with the CPC6128 and you state:

"People who buy the 6128 for business, however, are usually kidding nobody but themselves, and we all know that their main priority is to have something that they can play games on."

Not so! I was going to purchase an Apricot for my business, but after a careful analysis of my needs (and funds) decided on a monochrome 6128.

Not one game will be discovered in my office by even the most eagle-eyed sleuth!

Yes, I would have bought an Amstrad PC if it was around, but it wasn't and – as subsequent events proved – my decision was a good one.

With a Taxan-Kaga printer – in conjunction with Masterfile, Mastercalc, Protext, Prospell and Promerge – I have all that I need for my consultancy business.

I can produce accounting data on demand and have produced many reports (some of 60 or more pages) for clients in the UK and abroad.

All in all my trusty 6128 has, in only 11 months, saved a lot of administration, enabled me to mail my clients on a regular basis and has helped me to earn my living.

I am not going to ditch it yet! So, Mr. Kewney, consider your wrist well and truly slapped!

Naturally, I expect to see a suitably contrite (that is, grovelling) reply in *ACU*.

E.F. Munroe,
Leighton Buzzard.



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SOFTWARE

Position	Title / Publisher	Comment	Last month	Market strength
1 (Up)	**Comp. Hits 10 Vol 3** *Beau Jolly*	All your favourites on one tape. Make a good Christmas present.	ne	100
2 (Up)	**Trivial Pursuit** *Domark*	Quirky questions and polished presentation give you as many endless hours of fun as the board game.	6	91
3 (Non-mover)	**Apprentice** *Mastertronic*	Sorcery on a budget. Enjoy waving spells and conjuring up magic.	3	82
4 (Up)	**Tomahawk** *Digital Integration*	Fun helicopter flight simulation. Plenty of things to shoot with strategy if you want it.	19	79
5 (Down)	**Thrust** *Firebird*	Simple and clever space game. A cross between Asteroids and Lunar Lander.	1	75
6 (Up)	**Bomb Scare** *Firebird*	3D game in the alien 8 mould. Bit of a bore unless you are a die hard cartographer.	16	67
7 (New entry)	**Light Force** *FTL*	Excellent graphics and simple to play zap the aliens game.	ne	66
8 (Non-mover)	**5 A Side Soccer** *Mastertronic*	Lead your team to victory in this all-action sports simulation.	8	61
9 (Down)	**Speed King** *Mastertronic*	Excellent high speed action motorcycle racing game with large sprites.	2	61
10 (Down)	**Harvey Headbanger** *Firebird*	Jolly arcade game which demands quick wits and fast responses. Best for two players.	9	58
11 (Non-mover)	**Ghosts & Goblins** *Elite*	Faithful conversion of the coin-op original. Difficult but addictive. Great fun once mastered.	11	48
12 (New entry)	**Galvan** *Imagine*	Ladders and platforms with scrolling and killing space dragons.	ne	47
13 (Up)	**Storm** *Mastertronic*	Gauntlet-style view from above arcade game. Very addictive with a huge map.	18	43
14 (New entry)	**Tempest** *Electric Dreams*	Abstract vector graphics space game which should appeal to those who lust for speed and shooting.	ne	43
15 (New entry)	**Druid** *Firebird*	The game which "is in no way based on Gauntlet" even if it does look similar.	ne	42
16 (Down)	**Kane** *Mastertronic*	Excellently animated, budget priced Wild West Shoot.	4	42
17 (Up)	**Last V8** *Mastertronic*	Drive a big macho Chevy round the bends. Overhead view. Quite fun.	re	42
18 (New entry)	**Glider Rider** *Quicksilva*	Attack an enemy base with the aid of a flying motorbike/hang glider. Novel 3D game.	ne	41
19 (Up)	**Star Firebirds** *Firebirds*	A space based shoot-em-up in the classic style. It's amazing how much fun a low tech game can be.	re	38
20 (Down)	**Dan Dare** *Virgin*	Their best game is based on the comic strip. Stylish, thrilling adventure to save Earth from Mekon's Asteroid.	13	38

▶ Non-mover ▲ Up ▼ Down ● New entry

DECEMBER 1986

Chart compiled by Gallup/MicroScope

Multi-mode Multi-coloured Arnold

Those with good memories or a large collection of back issues might remember an article titled Events and screen dumps in the March 1985 ACU. To prove what a fast moving industry this is, Cliff Lawson brings you the much awaited follow-up.

There can't be many CPC owners who haven't got a copy of Sorcery secreted about their person somewhere. (Don't you just love double negatives). One of the features that made it such a notable game was the way in which the action took place in a multi-coloured play area while score and status were shown in an area using the more sedate Mode 1 because it offers higher resolution and hence more readable text than the chunky Mode 0.

How many people, I wonder, have been longing to incorporate such a feature into their own programs. What, none of you? Oh well here's a program to do it anyway.

Stolen secrets

Before user club members who were a party to the application notes that used to be produced cry "plagiarist", this program is indeed very similar to one that appeared in application note. It's OK though. I wrote that, so I think I've got every right to rip-off my own work. (And get paid for it twice? – Ed)

I won't bore you with the technicalities of how it works just yet, I'll do that in a bit. I'm sure you would much rather see the finished result.

Now in the past I have used all sorts of different loader programs and loading schemes all of which seem to generate no end of confusion. So to make it as simple as possible there is just one Basic program to type in – Listing I.

As always with a program that uses machine code, any attempt to run it will inevitably cause the machine to crash if there is even one typing error (and there is bound to be). So unless you like a lot of typing practice SAVE the program to tape or disc first. Because it is Basic you don't need a complicated SAVE command – SAVE "FRED" will do fine.

In future, assuming you want to use the program again, wind the tape to the right place or insert the correct disc and type RUN "FRED".

If all is well you should see the message MODES, INKS and NORMAL now active. If the message DATA error appears then guess what that means – go back and check all those DATA statements. Look out for O (Oh) and 0 (zero) mistyped and B (Bee) and 8 (eight). Spacing is also critical. After the word DATA there should be one space then two digits then one space then two digits and so on along each line.

Once the "active" message appears you should have three RSX commands added to Basic. An RSX command is just like any other except that it has a bar, |, at the front.

Users of disc systems or any sideways roms will already be familiar with commands like |CPM, |DISC, |MAXAM and so on. The bar symbol can be produced from the keyboard by holding down ' key.

Try typing |NORMAL followed by Enter. This should have the same effect as the command Mode 2.

Not very exciting was it? OK try |MODES,2,2,2,2 (don't forget Enter). Now was that exciting? No? Well what do expect from a magazine listing?

Just in case it hasn't, the border should have gone stripey red, orange, yellow, green, blue, magenta and the text should have changed to green on black. If this hasn't happened then it's check the DATA time again.

Try: |INKS,2,2. The yellow stripe in the border should turn blue. Stripey borders is not the only thing you can do though. First, to set all of the border to black type FOR i=0 to 5:|INKS,i,0-:NEXT. Now try |ModeS,0,2,2,1. The top five lines on the screen will become multi-coloured and quite unreadable. This is because the top quarter of the screen is actually in Mode 0, even though the next bit (where the cursor is, is in Mode 2).

Move the cursor down the screen till it turns blue. This section is in Mode 1. Try typing a little text. Once again it is unreadable.

Move the cursor back up the screen in to one of the Mode 2 sections and type the command |MODES,2,2,2,2. All the bits which were unreadable have now re-appeared.

Odd behaviour

Basics Mode command will no longer operate exactly as you might expect. Try the command Mode 1. Unlike



normal, the screen is not cleared, however the cursor is moved to the top of scren and the word "Ready" is printed in Mode 1 text.

Because the screen is still displayed as if it were all in Mode 2 the word "Ready" looks a bit stripey. Type the command CLS. The Mode 2 text disappears and a stripey "Ready" is printed at the top of the screen.

To turn the whole screen to Mode 1 type |MODES,1,1,1,1. The "Ready" and the |MODES command now appear all right.

So the moral of this is that you should always use a Basic Mode command before you start to Print text in an area that is being displayed in a particular mode. The |MODES command is now only used to tell the system how to write characters. If you want the screen cleared use CLS and if you want to change the displayed mode use the new |MODES command.

In case you hadn't guessed it already, the |MODES command is followed by four numbers which set the displayed mode for four sections of the screen.

There are in fact six separate sections (remember the six coloured stripes in the border). However two of the places where a mode switch could be made occur within either the top or the bottom border, so there is no point in having six parameters for the |MODES command.

The numbers after the other new command, |INKS, have the following meaning. The first number is between 0 and 5 and identifies which of the six sections of the screen is to be changed.

The next number sets the border colour and can be from 0 to 26. The numbers for any particular colour are shown in the table on page F3.2 of the 464 manual (or on top of the disc drive of a 664/6128).

The border colour can be followed by up to 16 other numbers which set the colours for pens 0 to 15. If you want to leave the border or any of the pens the same colour as before then give a value greater than 26 (I use 99).

To show how |INKS can be used to change pen colours first, we'll make the six sections visible again by turning the border stripey. Type FOR i=0 TO 5:|INKS,i,i*4:NEXT.

You'll see a black stripe in the top border and a pastel yellow stripe in the bottom border. The mauve, cyan, orange and bright cyan stripes show the four areas that are affected by the |MODES command.

Now type Mode0:|MODES,0,0,0,0: CLS. That will do everything that just Mode 0 would have done before. Now type PEN 2 and the next turns red. Type FOR i=0 TO 10:PRINT "hello":next.

All those "hello"s are printed in pen 2 and are therefore all red (because the ink for pen 2 is set to red).

Try |INKS,2,99,99,99,19 – some of the "hello"s in section 2 will turn sea green. This is because the ink for pen 2 in section 2 has been set to 19. If you type |INKS,3,99,26 the background in section 3 will turn white.

Help!

When everything gets really confused or you want to switch back to normal it's time for the third new command, |NORMAL.

If you just type this on its own the screen is put back to normal in Mode 2. If you follow it with either 0 or 1, the screen is reset into that mode. For example, |NORMAL,1 will put things back to normal in Mode 1.

Pork pies

Although I said there was only one Basic program to type in, I lied. There is a second relatively simple demonstration which shows several of the things that can be achieved with the RSXs. Type it in, SAVE it and then RUN it and count how many different coloured squares there are (and you thought there could only be 16 !).

The editor is bound to delete this bit, but I'll assume there might be a handful of people who are interested in how this mode/palette switching works.

The boring bit

In computing terms the length of time taken to scan a complete screen (1/50th of a second) seems like an eternity. Humans see what looks like a constant picture although it is being changed once every 50th of a second.

Now every 300th of a second the processor gets an interrupt that reminds it to do things like updating the clock, and every now and again to give the keyboard a quick scan. It can also run one of your own routines once every 300th of a second if you ask it to nicely.

I'm sure it doesn't take Einstein to work out that your routine (once every 300th remember) will actually be run six times during the lifetime of one frame on the screen (one 50th).

If this routine tells the hardware to change the scanning of the screen memory to another mode or with a different palette of colours, this change will become apparent at one of six points on the screen.

For the budding assembler programmers among you, the source code is given here. This will allow you to see how it all works and modify it to your own needs. For instance, if the address I have picked for the code (#A000) is too high for your requirements the code could be reassembled with a different ORG. There are liberal comments which should make its operation pretty self-evident.

Basically, to let the operating system know that you've got a routine to be run on the 300th second tick, you pass its address to a firmware routine at #BCE0 called KL—NEW—FAST—TICKER.

In this case the routine keeps a count of which section it is in (in a variable called section), uses it to look up a list of the modes for each section (a list called modevec) and switches to the desired mode.

It then multiplies the section number by 17 to give an offset in a table called ivecs. This contains six lots of 17 bytes where the first byte in each is the border colour and the next 16 are the pen colours. These numbers are hardware colour numbers (not the grey scale numbers that most people are used to). When they are first entered a routine called convert is called to translate from grey scale to h/w numbers.

The modes command modifies the list of modes (modevec), removes any pending ticker events then adds a new ticker event using the above routine.

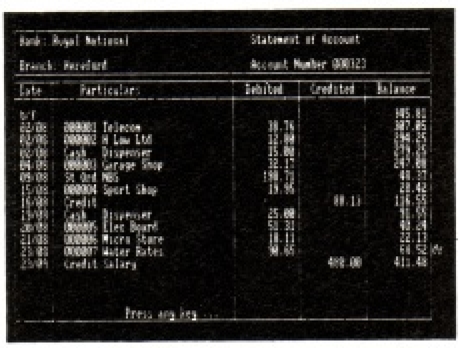
The |INKS command does nothing more than modify one of the six entries in the ivecs table. It calculates the necessary offset then converts each parameter before moving it into place.

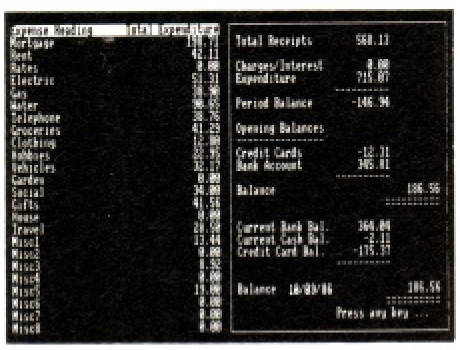
And that's all there is to it. I can't for the life of me think of any practical application for all this, but it's quite pretty and I'm sure you'll think of something.

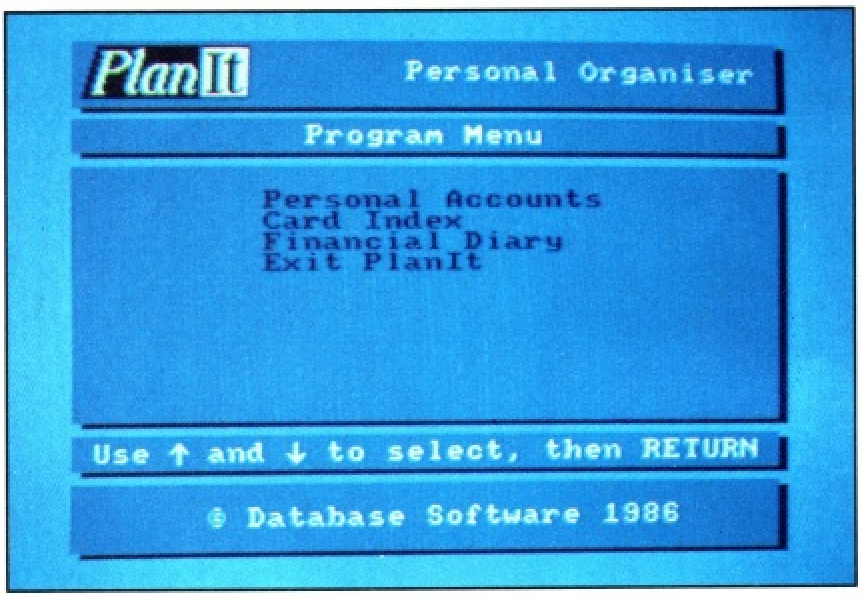


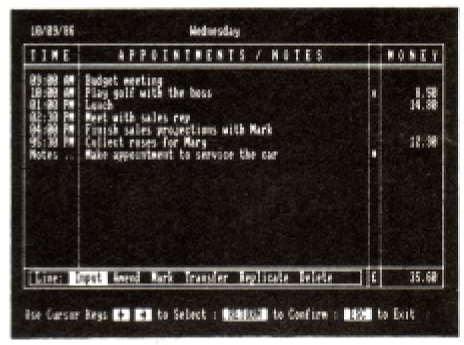
Clear your desk's clutter!

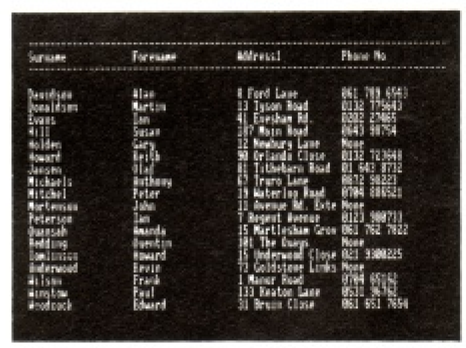












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Listing I

```
100 MEMORY &9FFF
110 FOR i=&A000 TO &A280 STEP 16
120  READ a$
130  FOR j=0 TO 15
140   byte$=MID$(a$,j*3+1,2)
150   byte=VAL("&"+byte$)
160   sum=sum+byte
170   POKE (i+j),byte
180  NEXT j
190 NEXT i
200 IF sum=50578 THEN CALL &A000 ELSE PRINT "DATA error":END
210 PRINT "|MODES, |INKS and |NORMAL now active"
220 NEW
1010 DATA 21 07 A2 01 09 A0 C3 D1 BC 14 A0 C3 2A A0 C3 B7
1020 DATA A0 C3 D5 A0 4D 4F 44 45 D3 4E 4F 52 4D 41 CC 49
1030 DATA 4E 4B D3 00 21 17 A1 C3 00 A1 FE 04 20 F6 CD CA
1040 DATA A0 21 01 A2 36 00 11 02 A2 01 05 00 ED B0 06 06
1050 DATA 21 05 A2 DD 7E 00 77 2B DD 23 DD 23 10 F5 3A 02
1060 DATA A2 32 01 A2 3A 05 A2 32 06 A2 3E C9 32 EB BD 3E
1070 DATA 00 32 00 A2 06 14 CD 19 BD 10 FB 21 F7 A1 06 81
1080 DATA 11 76 A0 C3 E0 BC 3A 00 A2 3C FE 06 32 00 A2 20
1090 DATA 04 AF 32 00 A2 F5 21 01 A2 16 00 5F 19 7E CD 1C
1100 DATA BD F1 CD 99 A0 CD 25 BD C9 FE 06 30 14 5F CB 27
1110 DATA CB 27 CB 27 CB 27 83 21 0B A2 16 00 5F 19 E5 D1
1120 DATA C9 21 AB A1 C3 00 A1 F5 CD CA A0 F1 B7 20 05 3E
1130 DATA 02 C3 0E BC DD 7E 00 C3 0E BC 3E C3 32 EB BD 21
1140 DATA F7 A1 C3 E6 BC B7 28 22 47 CB 27 3D DD E5 E1 5F
1150 DATA 16 00 19 2B 7E E5 CD 99 A0 E1 05 28 2B 7E FE 1B
1160 DATA 30 04 CD 0A A1 12 13 10 F2 C9 21 52 A1 C3 00 A1
1170 DATA 7E FE 24 C8 23 CD 5A BB 18 F6 E5 D5 5F 16 00 21
1180 DATA 71 A2 19 7E D1 E1 C9 0A 7C 4D 4F 44 45 53 2C 6D
1190 DATA 31 2C 6D 32 2C 6D 33 2C 6D 34 0D 0A 0A 73 65 74
1200 DATA 73 20 74 68 65 20 6D 6F 64 65 20 66 6F 72 20 34
1210 DATA 20 76 69 73 69 62 6C 65 20 73 65 63 74 69 6F 6E
1220 DATA 73 24 0A 7C 49 4E 4B 53 2C 73 2C 62 2C 69 30 2C
1230 DATA 2E 2E 2C 69 31 35 0D 0A 0A 73 65 74 73 20 74 68
1240 DATA 65 20 62 6F 72 64 65 72 20 28 62 29 20 61 6E 64
1250 DATA 20 69 6E 6B 73 20 28 69 30 20 75 70 20 74 6F 0D
1260 DATA 0A 69 31 35 29 20 66 6F 72 20 73 65 63 74 69 6F
1270 DATA 6E 20 73 20 28 30 2E 2E 35 29 24 0A 41 72 65 20
1280 DATA 79 6F 75 20 73 75 72 65 2C 20 6D 79 20 6D 75 6D
1290 DATA 20 61 6C 77 61 79 73 20 74 6F 6C 64 20 6D 65 0D
1300 DATA 0A 74 68 61 74 20 73 65 63 74 69 6F 6E 20 6E 75
1310 DATA 6D 62 65 72 73 20 77 65 72 65 20 66 72 6F 6D 20
1320 DATA 30 20 74 6F 20 35 24 00 00 00 00 00 00 00 00 00
1330 DATA 01 00 00 00 00 00 00 00 00 00 00 0C 14 12 0C 15
1340 DATA 00 02 03 04 05 06 07 0A 0B 0C 0D 0E 0E 14 12 0C
1350 DATA 15 00 02 03 04 05 06 07 0A 0B 0C 0D 0E 0A 14 12
1360 DATA 0C 15 00 02 03 04 05 06 07 0A 0B 0C 0D 0E 12 14
1370 DATA 12 0C 15 00 02 03 04 05 06 07 0A 0B 0C 0D 0E 15
1380 DATA 14 12 0C 15 00 02 03 04 05 06 07 0A 0B 0C 0D 0E
1390 DATA 0D 14 12 0C 15 00 02 03 04 05 06 07 0A 0B 0C 0D
1400 DATA 0E 14 04 15 1C 18 1D 0C 05 0D 16 06 17 1E 00 1F
1410 DATA 0E 07 0F 12 02 13 1A 19 1B 0A 03 0B 00 00 00 00
```

Listing II

```
100 MODE 2:CLS
110 |MODES,0,0,0,2
120 LOCATE 20,22
130 |INKS,4,99,99,26
140 PRINT "Multi-mode, Multi-colour demonstration"
150 LOCATE 32,24
160 PRINT "by Cliff Lawson"
170 MODE 0
180 FOR i=1 TO 5 STEP 2
190  |INKS,i-1,i*3 : |INKS,i,i*3
200 NEXT
210 FOR i=0 TO 18 STEP 9
220  |INKS,(i/9)+1,99,99,i,i+1,i+2,i+3,i+4,i+5,i+6,i+7,i+8
230 NEXT
240 FOR i=0 TO 8
250  PEN i+1
260  FOR j=0 TO 2
270   LOCATE i*2+2,j*7+2:GOSUB 320
280  NEXT j
290 NEXT i
300 WHILE -1
310 WEND
320 PRINT CHR$(136)CHR$(140)CHR$(10)CHR$(8)CHR$(8)CHR$(138)
    CHR$(143)CHR$(10)CHR$(8)CHR$(8)CHR$(138)CHR$(143)
330 RETURN
```

Listing III

```
        nolist
;
; RSX routines to allow setting of various modes/inks down screen
;
;               by Cliff Lawson 1985/86
;
; There are 4 areas within the main display area so that
;
; |MODES,m1,m2,m3,m4
;
; will set these four areas. mn is 0..2 obviously (other value
; means no change). The other 2 of the possible 6 are just about in
; the top and bottom border so are set to m1 and m4 resp.
;
;
; |INKS,s,ib,i0,i1,i2,..,i14,i15
;
; This allows the inks in section s to be set to i0..i15. The border for that
; section is set by ib. If a section is in MODE 1 then only ib and i0..i3 need
; be specified and in MODE 2 only ib,i0,i1. There are 6 sections visible,
; including two areas within the top and bottom border. A value greater than
; 26 for ib or i0..i15 means leave that ink as it is so for example :
;
;  |INKS,3,99,99,99,99,17
;
; will set ink 4 in section 3 to 17 (like INK 4,17).
;
;
; |NORMAL,m
;
; removes events and puts screen back to normal in MODE m (or MODE 2 if no m
; is given).
;
;
                write       "setmodes.bin"

txtoutput       equu        #bb5a
scrsetmode      equ         #bc0e
kllogext        equ         #bcd1
scrmodeclear    equ         #bdeb
klnewfastticker equ         #bce0
kldelfastticker equ         #bce6
mcwaitflyback   equ         #bd19
mcsetmode       equ         #bd1c
mcsetinks       equ         #bd25

        ;cseg

        org     #a000               ;anywhere in central 32k
        ld      hl,work
        ld      bc,comtab
        jp      kllogext            ;add the RSX commands

comtab:
        defw    namtab
        jp      modset
        jp      offev
        jp      setinks
namtab:
        defb    'MODE','S'+#80
        defb    'NORMA','L'+#80
        defb    'INK','S'+#80
        defb    0

warn1:                              ;remind syntax if 4 parms not given
        ld      hl,modemess
        jp      pmess

modset:
        cp      4
        jr      nz,warn1            ;always takes 4 parameters otherwise warn.

        call    remove              ;just in case |MODES is already in effect
        ld      hl,modevec
        ld      (hl),0
        ld      de,modevec+1
        ld      bc,5
        ldir                        ;reset list of modes (6, but just 4 visible)

        ld      b,6
        ld      hl,modevec+4        ;work backwards from +4 to +1
cjl:
        ld      a,(ix+0)            ;get RSX parameter
        ld      (hl),a              ;store in mode vector
        dec     hl
        inc     ix
        inc     ix
        djnz    cjl                 ;fill in middle 4 of 6 mode sections

        ld      a,(modevec+1)
        ld      (modevec),a         ;make 0 and 1 the same
        ld      a,(modevec+4)
        ld      (modevec+5),a       ;make 4 and 5 the same
        ld      a,#c9
        ld      (scrmodeclear),a    ;so MODE wont clear the screen
        ld      a,0
        ld      (section),a         ;initialise section counter

        ld      b,20
cliff:  call    mcwaitflyback       ;sync addition of RSX to known point (ffb)
```

```
        djnz    cliff

        ld      hl,evblk
        ld      b,#81
        ld      de,evrout
        jp      klnewfastticker  ;add the 300th sec event

evrout:
;
; this is run every 300th of a second allowing 6 changes in the 50th
; of a second that it takes to scan the screen
;
        ld      a,(section)     ;section counter
        inc     a
        cp      6
        ld      (section),a     ;0..5
        jr      nz,skip
        xor     a
        ld      (section),a
skip:
        push    af
        ld      hl,modevec
        ld      d,0
        ld      e,a
        add     hl,de
                                ;add section number (section) onto base
                                 of vec list
        ld      a,(hl)
        call    mcsetmode
        pop     af
        call    mult17          ;get section number back
        call    mcsetinks       ;convert to absolute table address in DE
        ret                     ;set new inks palette

mult17:
;
; multiply A by 17 to make offset in ink vector table
;
; return table address in DE
; corrupts hl and af
;
        cp      6
        jr      nc,warn3        ;section numbers only go up to 5
        ld      e,a
        sla     a               ;hold onto 1*a
        sla     a
        sla     a
        sla     a
        add     e               ;a*16
        ld      hl,ivecs        ;a*16+a*1=a*17
        ld      d,0
        ld      e,a
        add     hl,de
        push    hl
        pop     de
        ret                     ;de points at 17 bytes of ink vector.

warn3:
        ld      hl,sectmess
        jp      pmess

offev:
;
; reset screen mode clear indrection so that MODE now clears the screen
; finally pick up parameter and switch to that mode (or 2 if no parm)
;
        push    af
        call    remove
        pop     af
        or      a
        jr      nz,eric
        ld      a,2
        jp      scrsetmode
eric
        ld      a,(ix+0)
        jp      scrsetmode

remove:
        ld      a,#c3
        ld      (scrmodeclear),a
        ld      hl,evblk
        jp      kldelfastticker
setinks:
;
; set the inks and border colours for a particular section
;
; as always, on entry A holds the N, the number of parameters and IX points
; to the stacked parameters. That is
;
;  (IX+0/1)         holds ink N
;  (IX+2/3)         holds ink N-1
;     :                :    :
;  (IX+2N-5/2N-6)   holds ink 1
;  (IX+2N-3/2N-2)   holds border colour
;  (IX+2N-1/2N)     holds section number
;
        or      a               ;set flags
        jr      z,warn2         ;if no parms then give syntax
        ld      b,a             ;put number of parms somewhere useful
        sla     a               ;2N
        dec     a               ;2N-1 (point at low byte of section word)
        push    ix
        pop     hl              ;about to calculate section parm address
        ld      e,a
        ld      d,0
        add     hl,de           ;hl=ix+2N-1
        dec     hl              ;fiddle factor
        ld      a,(hl)          ;get section number
        push    hl
        call    mult17          ;make addr for ivecs table in DE
        pop     hl
        dec     b               ;going to loop for all but section number
fred:
        dec     hl
        dec     hl              ;double dec because they are words
        ld      a,(hl)          ;get parameter
        cp      27
        jr      nc,same         ;if ink given is >26 then leave it the same
        call    convert
        ld      (de),a          ;set ink to new value
same
        inc     de              ;step inks pointer on
        djnz    fred
        ret

warn2:
        ld      hl,inksmess
        jp      pmess

pmess:
;
; Print message pointed at by HL and ended with a dollar sign (a la CPM 9)
;
        ld      a,(hl)
        cp      "$"
        ret     z
        inc     hl
        call    txtoutput
        jr      pmess

convert:
;
; convert from grey scale number to h/w colour number
;
        push    hl
        push    de
        ld      e,a
        ld      d,0
        ld      hl,convtable
        add     hl,de
        ld      a,(hl)
        pop     de
        pop     hl
        ret

        ;dseg

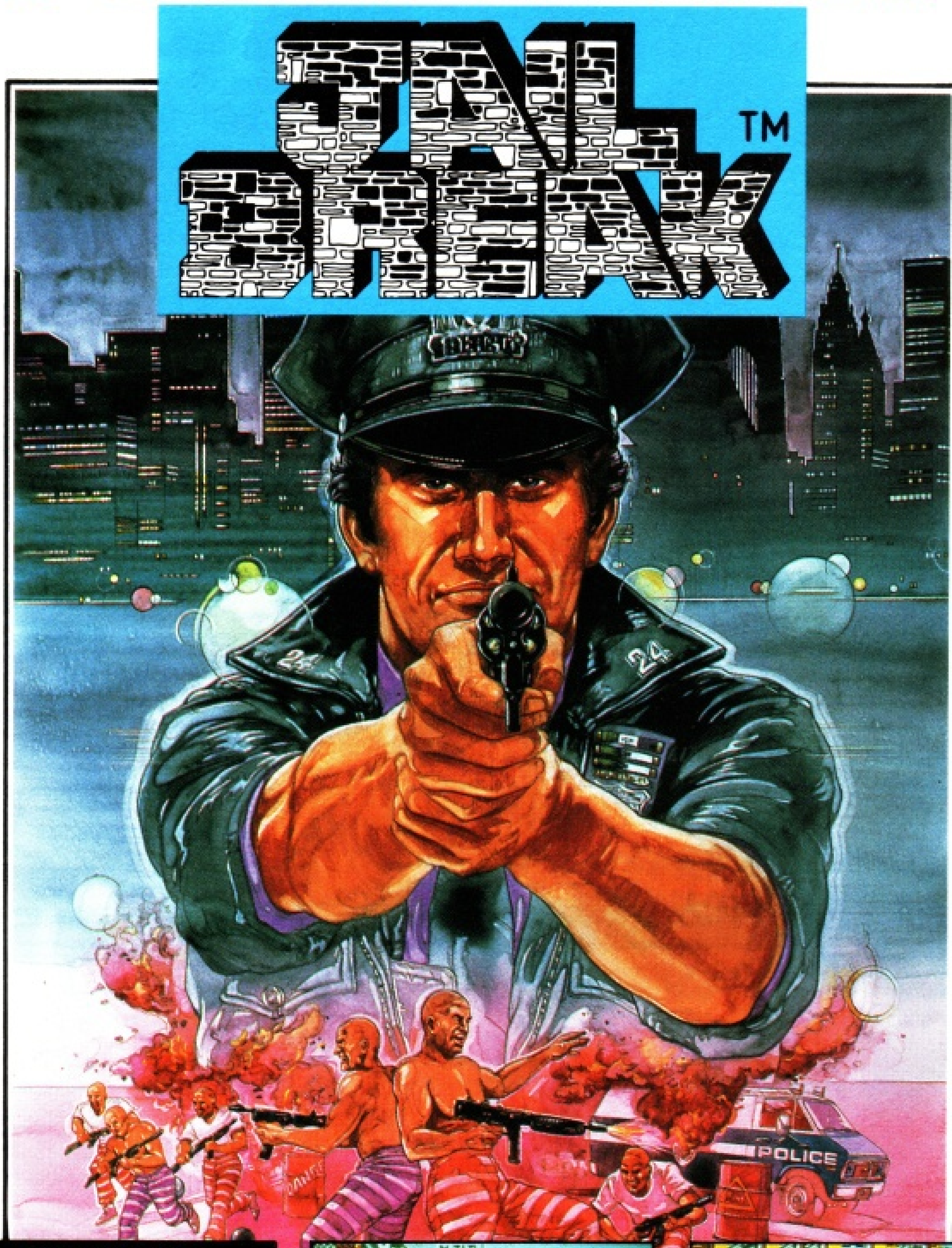
modemess
        defb    10,'IMODES,m1,m2,m3,m4',13,10,10
        defb    'sets the mode for 4 visible sections$'
inksmess
        defb    10,'IINKS,s,b,i0,...,i15',13,10,10
        defb    'sets the border (b) and inks (i0 up to',13,10
        defb    'i15) for section s (0..5)$'
sectmess
        defb    10,'Are you sure, my mum always told me',13,10
        defb    'that section numbers were from 0 to 5$'
                                ;event block
evblk   defs    9
                                ;current screen section (0..5)
section defb    1               ;6 bytes to hold mode for each section
modevec defs    6               ;system work space for RSX commands
work    defs    4               ;table of 6 palettes (1 border and 16 inks)
ivecs
        defb    12,20,18,12,21,0,2,3,4,5,6,7,10,11,12,13,14
        defb    14,20,18,12,21,0,2,3,4,5,6,7,10,11,12,13,14
        defb    10,20,18,12,21,0,2,3,4,5,6,7,10,11,12,13,14
        defb    18,20,18,12,21,0,2,3,4,5,6,7,10,11,12,13,14
        defb    21,20,18,12,21,0,2,3,4,5,6,7,10,11,12,13,14
        defb    13,20,18,12,21,0,2,3,4,5,6,7,10,11,12,13,14
                                ;conversion table from h/w to grey number
convtable
        defb    20,4,21,28,24,29,12,5,13,22,6,23,30,0,31,14
        defb    7,15,18,2,19,26,25,27,10,3,11

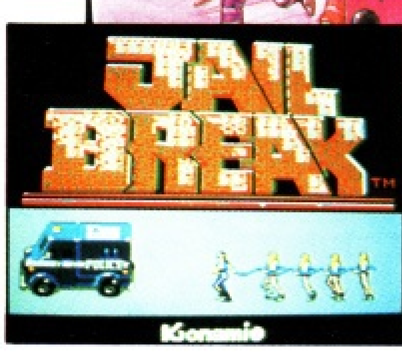
        end
```

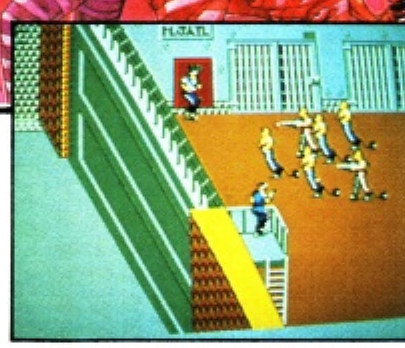
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Coffee maker	Philips	HD5349	£30.00
Parcel scale	Salter	250P	£113.00
Microcomputer, 48K	Silicarn	Trumspec	£129.95
Letter scale	Waymaster	375KL	£10.00
Totals:			£5,202,294.26

Top record = 0001 [H] for menu

File: FILE2 Records:0016 Selected:0016 Parents:0000 RAM used:02K from 64K

ALL THIS POWER ...

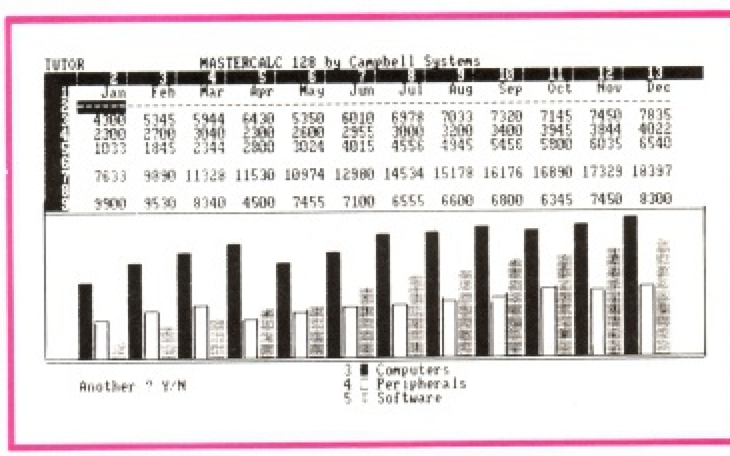
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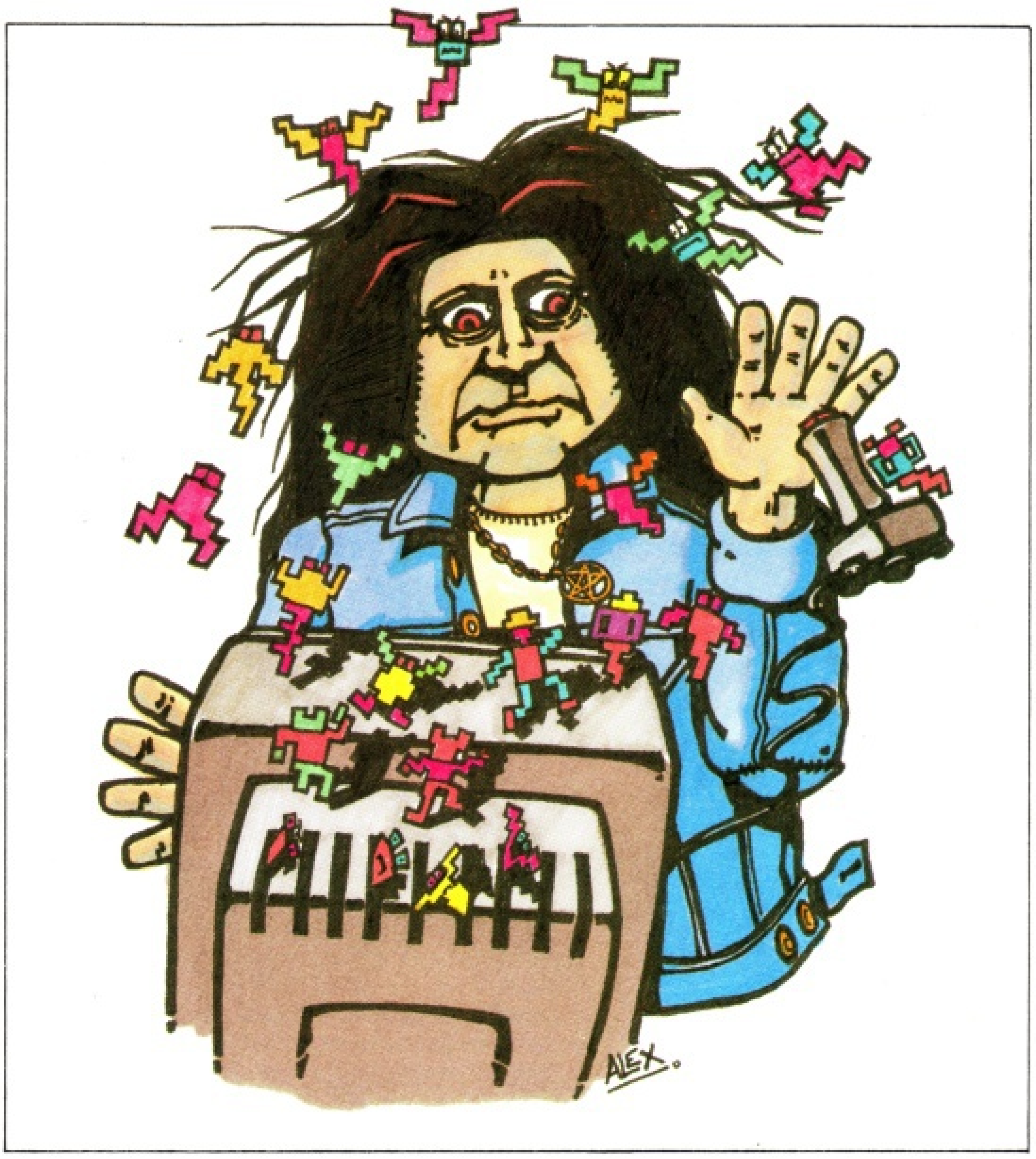
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HAIRY HACKERS HAUNT



Christmas Greetings from Vax

The Hairy Hacker hax, and having hacked moves on

Happy pagan festival folks! As we near Christmas, you can be sure of one thing – lots of very silly Christmas specials from all departments of all computing mags.

In preparation for the great event dynamic screens with falling snow will be confusing the worst of Prestel packages everywhere. Thousands of disc crashes and snarled printers will result from over-enthusiastic festooning of tinsel and spray-on snow by festive (and probably drunk) office staff, the remaining (functional) line printers will be churning off gothic Merry Xmas banners (together with Snoopys in Santa Claus outfits), and somebody somewhere is working on the ultimate Christmas card-on-a-disc, complete with a three-voice disco-mix rendition of Jingle Bells.

Dominick Heriz-Smith of Exeter (and there can't really be many Heriz-Smiths can there?) has written in with a poke for Commando, and here's the proggykins. Just the thing for the season of goodwill to all men eh ?

```
10 MEMORY &5BFF:LOAD "COMMANDO",&5C00
20 FOR A=&9000 TO &9012:READ B:POKE A,B:
   NEXT
30 POKE &5C33,&C3:POKE &5C34,0:POKE &5C3
   5,&90
40 CALL &5C00
50 DATA 205,122,188,175,50,15,78,6,6,33,
   59,7,119,35,16,252,195,54,92
```

Disc drive owners might want to put a 5 |TAPE in it. Cassette users might want to put a disc drive on their Christmas list. He also asks which is THE one; Yie Arrgh Kung-Fu or Way of the Exploding Ferret (ferret— a rat that's been sharpened and driven through a bung hole).

Personally, and I can get pretty personal, my vote goes to WOTEF, but I'd like to complicate things by suggesting a look at Sai Combat, 'cos that ain't 'alf bad.

Hooray! I've had a female hackers letter; they do exist! Now all you shy ones can write in without fear, and with a lot of encouragement from my wife. More about this letter later.

Machine specific – two words that can strike fear into the hardened heart

of Amstrad's technical department. Fortunately, the Hairy Hacker isn't so worried about it, I only have nightmares about it every other night, unlike Robin Evans of Reading, who couldn't be bothered.

He has written a couple of proggy-ettes to stuff Covenant game-states into the extra RAM on a 6128 or 464 with DK'tronic's add-on. A puzzle in two parts; part one to load in an old game, patch game and run it; part 2 to store a ram game on disc. Bank Manager is not required, due to direct hitting of hardware. Cop this:

```
5 MEMORY &3FFF
10 OUT &7F00,196
20 LOAD "savebbbb",&4000
30 OUT &7F00,192
1000 MEMORY 4999
1010 LOAD "covbin",5000
1020 RESTORE 1120
1030 FOR i=0 TO 26
1040 READ a$:POKE (14056+i),VAL("&"+a$)
1090 NEXT i
1100 CALL &2A87
1110 END
1120 DATA 3E,C4,01,00,7F,ED,79,21,3A,07
1130 DATA 11,00,40,01,4C,04,ED,B0,3E,C0
1140 DATA 01,00,7F,ED,79,18,09
1150 DATA 3E,C4,01,00,7F,ED,79
```

Here's the second proggy that you'll need to hoik the current game on to disc from yer extra ram. A bit pointless without this:

```
10 OUT &7F00,196
20 SAVE "savebbbb",b,&4000,&B88
30 OUT &7F00,192
```

Now it's very easy to save just before, and reload just after, severe errors of judgement (cockups). Thanks, Robin.

Poker's Apprentice

John Moore of Crewe has written in on stylish green-and-white-striped paper with another poke for the Apprentice. It's shorter than Justin's, but gives you only (!) 255 lives. The only reason to use this instead of Justin's poke is so that your brother/sister/hyper-intelligent pet gerbil does eventually quit playing with your machine:

```
10 MEMORY &1200-1
20 LOAD "!"
30 POKE 4703,&C9
40 CALL &1200
50 POKE 37511,255:' Put in a different n
   o if you want.
60 CALL &1200
```

The poor misguided soul also sent in more Manic Miner pokes. Before I go into another miner dissitation, letting loose another shaft of violence and hauling him over the coals, I shall pick this moment in time to say: Threat, threat, threat. No more flipping Manic Miner pokes, OK? (Everything else welcome of course.)

While on the subject of 6128s, John "The Turkey" Bourke (he said it, not me) of Cork has noticed some extra commands hiding in the deep murky depths of Bankman. The following program causes them to rear their ugly heads:

```
10 start=&8000:MEMORY start-1
20 LOAD "BANKMAN.BIN",start
30 CALL START
40 POKE start+&171,&56
50 NEW
```

Admittedly not the neatest way in the universe of loading a re-locatable binary program, you might want to do sums with HIMEM less the length of BANKMAN.BIN. As the program is re-locateable, you might as well make use of it. Anyhow, it does unleash the following commands which woz otherwise unobtainable:

VIEW, 0 or 1

VDU, 0 or 1

VDU 0, 0 or 2-5

The first lets proggys look at the high or low screens (see last month's column for an explanation), while VDU lets you actually scrawl on one while looking at another. VDU0 is currently in the "very useful, but what does it do?" bracket.

John seems to be in to foul things to do to a 6128, such as the following bug in the cursor routines. Use this to confuse already unstable Dixons' staff.

Lean on cursor down until all messages have scrolled off the top. Hold down Shift key and thump up, down. Pinky off the Shift key, down twice. Pinky back on Shift key, go right and where the heck did all them cursors come from, eh?

Told you I got one! A letter from a female! Miss D. Graves of Rainham can't seem to get the Sabre Wulf poke going. All she ends up with is Read error B. This, I'm afraid, is your computer's subtle way of telling you that you have a sick tape. Either that or somebody put some protection on your version which wasn't on the one Stewart had.

She also asks what happened to the Jet Set Willy on a 6128 poke. Well, my mate Cliff managed to cure the random teleport problem, but the screen colours were all over the shop. He thinks it's impossible. Does anyone know any better?

Hacker help

Have ye ever played Hacker? I wonder where the hacking comes in? Still, some people liked it, and just to prove it here's a letter from Graham Lee in sunny Belford, which tells you what to trade with who.

To explain the table below, the french (yes, I know it's a small eff) are the only mob to accept cash, so you have to go there first. O means that the item comes from there, Y means that it will accept it, and N means that it won't. Pretty obvious really:

Hints for 'HACKER' from Graham S Lee.

ITEM	COST	FRANCE	LONDON	GREECE	EGYPT	INDIA	BRAZIL	CALIFORNIA	NEW YORK	JAPAN	CHINA	WASHINGTON
CASH		Y	N	N	N	N	N	N	N	N	N	N
CHRONOGRAPH	200	O	Y	N	Y	Y	N	N	N	N	N	-
DEEDS TO SWISS CHALET	9500	O	N	N	Y	N	Y	N	Y	N	N	-
BEATLES ALBUM	800	-	O	N	N	N	N	Y	N	N	N	-
CROWN JEWELS	9500	-	O	N	N	N	N	N	N	N	N	-
JEWELED SCARAB	1500	-	N	Y	O	Y	N	N	N	N	N	-
STATUETTE OF TUT	1000	-	N	Y	O	N	N	N	N	N	N	-
STAR OF INDIA	5000	-	N	N	N	O	N	N	N	N	N	-
JEWELED LAMP	1000	-	N	N	N	O	N	N	N	N	N	-
GOLD NUGGETS	1500	-	N	N	N	N	N	O	N	N	N	-
49er SEASON TICKETS	200	-	N	N	N	N	N	O	N	N	N	-
3ct UNCUT DIAMOND	2000	-	N	N	N	N	N	N	O	N	N	-
STOCKS & BONDS	2000	-	N	N	N	N	N	N	O	Y	Y	-
SPANISH DUBLOONS	500	-	N	N	N	N	O	N	N	N	N	-
TREASURE MAP	700	-	N	N	N	N	O	N	N	N	N	-
ANCIENT ARTIFACT	1000	-	N	O	-	N	N	N	N	N	N	-
GRECIAN URN	1000	-	N	O	-	N	N	N	N	N	N	-
MING VASE	2000	-	N	N	N	N	N	N	-	N	O	-
JADE CARVING	2000	-	N	N	N	N	Y	N	-	N	O	-
CULTURED PEARLS	300	-	N	N	N	N	N	N	-	O	Y	-
35mm CAMERA	300	-	Y	N	N	N	N	Y	-	O	N	-

O = ORIGIN - Y = YES - WILL ACCEPT - N = NO - WILL NOT ACCEPT

Totally ignoring the Clean Up Naughty Labels Society, I would like to ask if anyone out there has accidentally created any vaguely amusing assembler labels, procedure names, even filenames.

Prime examples are the Far Call in the Arnold manual, Real ALEs in ICLs, calling a routine to clear the lower half of the screen WIPE—BOTTOM and so on. Don't send us any that are too rude. Save those for the nearest representative of your least favourite political party.

You may have noticed that I don't have any spelling errors now, due to my wonderful Locosmell Speeling Chocker. Seriously, it's just the thing for dyslxeic journalists.

LocoScript has flipped

While on Locothings, some of you may have trouble reading the screen due to glare. This is very unfortunate, but could be helped if the screen was inverted (green=black not flipped upside-down, twit). This is easy in CP/M use the PALETTE command. On Locoscript, you might forgiven for thinking it's impossible. Wrongo! Here's how (sorry folks, version 1.20 only for the moment): Start up in CP/M, Locoscript in drive A: and type:

B:SET J20LOCO.EMS [RW,DIR]

Most people by now know that to enter a command you hit the [RETURN] key

at the end of a line. Put in your CP/M system disc when it asks for drive B:, or, on a two drive machine, make sure it's in the drive in the first place. It must be a copy of Locoscript, 'cos your original is write protected, and I'm not telling you how to undo what I've done.

Next, type:

DIR A:

and hit the space bar when it asks for disc A:, changing discs as you go. This lets you see that you can now access the hidden Locoscript file, and also helps us round one of the bugs in CP/M (cough, cough). To defeat the bug, hit the [STOP] key now. Type in:

B:SID

Oh yes, the dreaded SID again. When asked for disc B:, put in your Programming Utilities disc. Twin disc users put it in the drive beforehand. Now we're staring SID in the eyeballs, type:

RJ20LOCO.EMS

Put in the copy of Locoscript when asked for, disc will read in the Locoscript file for us to do evil to. To do the bad deed, type:

S876A 3E C0 00 .

Now we save off the work so:

WJ20LOCO.EMS

Re-boot straight in into inside-out inverted Locoscript. This poke was construed without any help from the High Fixer of Locomotive, who probably doesn't approve, and probably has some good reasons not to.

Hidden defender

Letters, letters everywhere. Here's one that Jettinder Kumar of West Bromwich sent in, after sitting on it for a whole year, but he guarantees originality. It's yet another parting shot at Defend or Die (some games just refuse to lie down and admit they've snuffed it). He's gone a secret screen, and here's how to get at it:

Run as normal (the game, not you, twit) and when the 'X points per baddie' menu comes up, hold down Control, Shift, Enter, Delete while tapping the 'V' key lightly. You now have the hidden page in your sights, and feel completely confident of achieving the lotus position in yoga. Now it's 'oh god, earth please open up and swallow me as whole' time. Justin is half Jugoslav, not Polish as printed earlier. Anyone can make a mistake, especially a journalist.

Still, the pokes are back, and better than ever. Let's have a peek.

In envelope number one we have this little sucker, freezing bits off Frost Byte. Type in and RUN this wee proggy with your rewound tape in. No checksum here, but you can type straight can't you ?

```
10 MODE 1:MEMORY &1FFF
20 LOAD "",&2000
30 POKE &2030,&90
40 FOR n=&9033 TO &901B
60 READ a$:a=VAL("&"+a$)
70 POKE n,a
80 NEXT n
90 CALL &2000
100 DATA 21,00,00,22,69,05,22,63
110 DATA 0F,22,95,0F,22,0A,05,22
120 DATA 0C,05,7D,32,67,05,C3,03
130 DATA 01
```

That gives your Kreezer infinite lives, and infinite twang. You dunno what the heck I'm on about ? Go buy a copy. Next on the conveyer belt tonight, we have some superior magic incantations for Apprentice by Mastertronic. Enter the magic spell, rewind and RUN:

```
10 MODE 1:OPENOUT "d"
20 MEMORY &11FF
30 LOAD ""
40 POKE &1260,100
50 POKE &1261,0
60 DATA AF,32,7B,89,32,9E,91,32,5F,8B,C3
   ,7A,9E,4A
70 FOR n=100 TO 113
80 READ a$:POKE n,VAL("&"+a$)
90 NEXT n
100 CALL &1200
```

Again, no checksum to fall back on, take it on trust. Are you losing too often in Tempest. Is it all a storm in a teacup. Will these awful puns blow over ? Who cares, try this poke anyway, this time it's checksummed. Who' FOO ?

```
10 MODE 1:MEMORY 12345
20 LOAD ""
30 tot=0
40 FOR n=&F00 to &F26
50 READ a$:a=VAL("&"+a$)
60 POKE n,a:toto=tot+a
70 NEXT n
80 IF tot<>3855 THEN PRINT "Justin says:
    Check your data !":END
90 CALL &F00
100 DATA 3E,C3,21,0E,0F,32,AE,BB
110 DATA 22,AF,BB,C3,05,40,CD,37
120 DATA BD,3E,C3,32,E0,4E,32,29
130 DATA 4F,AF,32,DC,4E,32,25,4F
140 DATA 32,41,54,C3,10,40,4A
```

Rewind tape, RUN this proggy, press PLAY etc. You know the routine by now. Oh yes, as an extra, this also gives you infinite super zappers. Ever been zapped in the infinites ? Last one in the envelope folks, unless ed has had any more. I meant pokes ed. OK, here's a mortality modifier for Galvan. To save wear and tear on my Joyce's CUT and PASTE keys, I'll let you and your fertile imagination work out what to do with it. Answers on a postcard ....

```
10 MODE 1:MEMORY 12345
20 LOAD ""
30 tot=0
40 FOR n=&BE00 TO &BE28
50 READ a$:a=VAL("&"+a$)
60 POKE n,a:tot=tot+a
70 NEXT n
80 IF tot<>4778 THEN PRINT "In my infini
   te wisdom, I have detected an error i
   n the data.":END
90 CALL &BE0C
100 DATA AF,32,AC,60,C6,C3,32,AD
110 DATA 60,C3,00,49,3E,C3,21,20
120 DATA BE,32,E2,39,22,E3,39,11
130 DATA 40,00,21,FF,AB,C3,AF,39
140 DATA 3E,FF,32,2F,02,F3,F1,C9
150 DATA 4A
```

Not many people suspect, and even fewer really want to know, but a fair chunk of Hairy Hackers is written in a small launderette in Hoddesdon. The swirling motion of the towels, sheets and underwear has a stimulating effect on the brain. Not surprising really, as both are dirty but colourful. The brain cells cavorting around eventually came up with this bijou-proggy-ette. You type it in and see what it doth, I'm not going to tell you:

```
10 MODE 0:BORDER 0
20 OUT &BC00,1:OUT &BD00,0
30 FOR i=0 TO 15:INK i,i*1.7:NEXT
40 i=0:LOCATE 3,2
50 READ x:i=(i+1) MOD 15:IF x<0 THEN 70
60 PEN i+1:PRINT CHR$(x);:GOTO 50
70 FOR x1=-200 TO 200 STEP 100
80 y1=0:GOSUB 260:NEXT
90 FOR i=0 TO 40:CALL &BD19
100 OUT &BC00,1:OUT &BD00,i
110 OUT &BC00,2:OUT &BD00,i\2+26
120 OUT &BC00,6:OUT &BD00,i\2+5
130 OUT &BC00,7:OUT &BD00,i\2+10
140 NEXT
150 GOTO 150
160 DATA 77,101,114,114,121,32,67,104
170 DATA 114,105,115,116,109,97,115
180 DATA 32,33,31,3,21
190 DATA 70,114,111,109,32,86,65,88,32
200 DATA 97,110,100,32,83,85,90,46
210 DATA -1
220 PLOT x,y,11
230 s=40:FOR i=-s TO s STEP 4
240 MOVE x+i,y:DRAWR 0,s-ABS(i)
250 NEXT:RETURN
260 FOR y=210+y1 TO 300+y1 STEP 30
270 x=320+x1:GOSUB 220:NEXT
280 FOR x=312+x1 TO 330+x1 STEP 4
290 MOVE x,208:DRAWR 0,-32,7:NEXT
300 RETURN
```

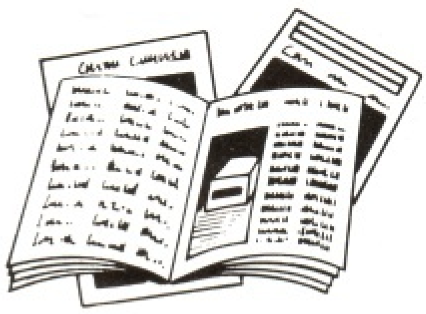
Amaze your friends. Astound your enemies. While they're standing there agog, clout the beggars. Before I go back into the alleys of obscurity, does anyone out there know why computer journalists don't look out of the windows in the morning ? It's so they've got something to do in the afternoon. Merry Christmas!

ACU

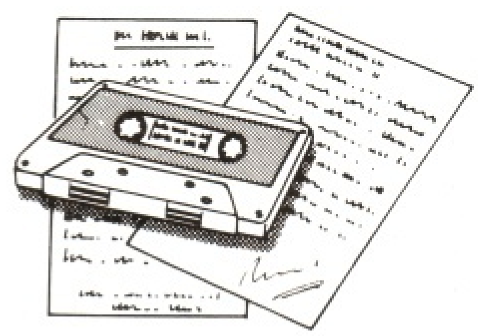
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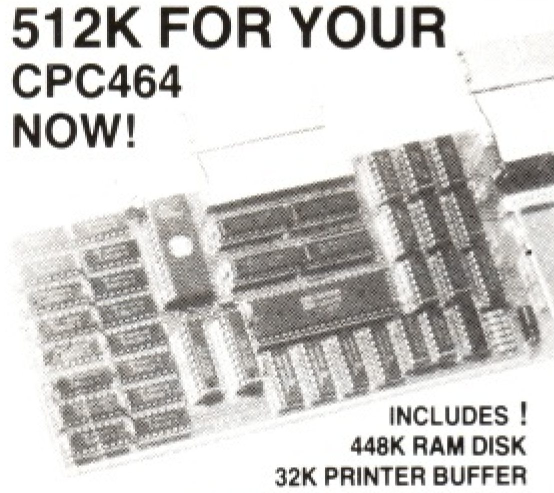
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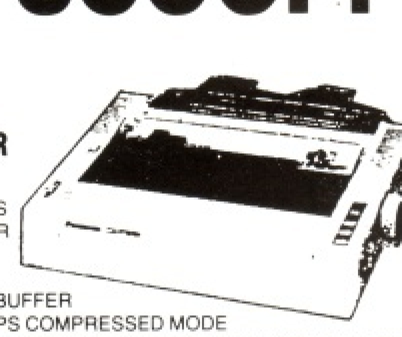
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SEEK AND YE SHALL FIND...

Into adventures with Bill Brock

All for money

Infogrames latest in the adventure field is Inheritance (Panic in Las Vegas). Perhaps I should say one of the latest – it's such a prolific software house that by the time you read this there may well be another being advertised.

You play Peter Stone, a drop out character living in a pretty murky room on the 17th floor of a block of similar seedy apartments. One day he gets a telegram telling him a rich aunt has died and that he will inherit her fortune.

There is of course a small snag. To qualify for this untold wealth, his aunt has stipulated in her will that Peter must travel to Las Vegas and repeat her achievement of the thirties by winning a million dollars – overnight!

The program is on disc and cassette and is in three parts, each of which must be concluded before the next may be attempted. You are given an eight letter code on the successful completion of the first and second parts to allow you to continue.

The game may be played either from the keyboard or with a joystick. There is no need to type in any words, as every action is decided by the position of a cursor moved over the pictorial display. You see what Peter sees.

The first part is in the building and the second at the airport. To move around you direct the cursor to either the left or right side of the display and Peter will turn through 90 degrees. To move forwards simply position the cursor in the middle of the screen and press the fire button (or spacebar). In the third part, Las Vegas, you are given a map and move the cursor to where you wish to visit. There is no movement within a location.

The graphics are good cartoon pictures and appear very rapidly. Positioning the cursor over certain parts of the picture and pressing the fire button will cause various actions. Some items may be picked up and some characters may have a message for you.

You (Peter) have been sent a plane ticket and $200 to start you on the road to fame and fortune. Your first aim is to leave the apartment block on route for the airport. This is not as easy as it sounds, for unknown to Peter someone has steamed open the telegram about his good fortune and spread the word to all the other people in the block.

Peter has been out of any regular work for some time and has borrowed all sorts of items from his fellow tenants. Before you can leave, these must be returned to their owners. And as Peter cannot remember who they belong to, you have to find out who should get what.

The room contains cupboards and drawers packed with all manner of treasure (junk?). There is also a bag that can hold eight items – you can get hold of this by placing the cursor over it and pressing fire. Do the

same to the objects found and they will go in the bag.

As you leave the room and go down the stairs (or lift), your neighbours will appear and demand their belongings – and unless you can return the right items to the right people you cannot leave the building. There is another small snag – you have only 17 minutes to leave the building to get to the airport on time.

Much like any other adventure this poses a problem of, in this case, simple substitution. It is unlikely that you will carry all the right objects at the first attempt and just to confuse the issue the people appear at random on any of the 17 floors.

Once you have worked that out and attempted to leave the building, you will find that you still need one or two of Peter's things. These are fairly obvious when you think about it does mean a return trip to his room at some time – just a matter of planning in advance.

At the airport you have only a few minutes to board the plane. This should be simple, but you drop something vital and have to find it. There are not many locations here but nearly all of them hold something or someone of interest. Anything seen or heard could be important.

Once you land at Las Vegas you must catch the right bus into town. This can be little frustrating as it is difficult to see any logic to the bus services. It becomes even more frustrating when you realize that there is no save game facility and you will have to repeat xxx moves to try again.

Once in Las Vegas the game degenerates into more of a lottery than a logical progression. Your task is to turn a hundred dollars into a million. There are several ways in which to do this but the two principal ones involve pure luck at playing dice or a variation of roulette.

There are fruit machines that steadily make you money but at too slow a rate to to be worthwhile, other than to initially increase your stake. You can steal things and sell them to a fence but again only for peanuts. Russian Roulette can get you $30,000 a time but is only worth trying at the very beginning as sooner or later a bullet is in the wrong chamber!

The game just creeps into the adventure field and with the technique of movement and general object handling is worth seeing. It is a shame that games involving more skill or judgement are not used in the final stages as this would have been more in keeping with the need for a logical mind in the first two parts.

Read the book

The Snow Queen by Hans Christian Andersen has been around for a very long time but has only recently been translated into a digital form suitable for the Amstrad. That remarkable group at St Bride's School in County Donegal have once again worked their magic to produce a humdinger of an adventure, using this story as the basis for their latest fiendish plot.

Produced using The Quill and Illustrator from Gilsoft, it once again proves that with care and good planning, really first class adventures are possible using these games creator programs.

The instructions not only include all the normal information on playing, saving and loading the game but also a very useful list of some of the words understood by the program and a cut down (but still lengthy on the instructions sheet) version of the original story. Read both very carefully. The game follows the story closely but of course there were many things happening that were not all written down at the time!

For those that do not know the story of The Snow Queen, it starts with the evil goblins of this world making a magic mirror. Everything reflected in it was made to appear worse than it really was. Good things appeared as nothing and evil stood out clearly and looked ten times worse.

The goblins took the mirror and carried it up to heaven to look at the angels' reflections. On the way it shattered into a vast number of fragments which entered the hearts and eyes of men and caused many of the woes of the world. Even now fragments of that evil glass are floating through the air to trap the unwary.

Two of these tiny fragments entered the heart and eye of a little Danish boy, Kay. His devoted friend Gerda could not believe the change that came over him, for she loved him dearly. Kay was now a marked being and was kidnapped by the evil Snow Queen and carried away to her palace at the north pole.

Your task is to help Gerda on her quest to find and rescue Kay. She will often ask you what she should do next, but sometimes she shows a stubborn streak and does not do what you suggest! She is a very righteous young lady and has a strong moral standard that she will not break, no matter what.

Note the word stubborn though. There are occasions when Gerda will have to be told to do something



more than once, but these are usually obvious in her responses or attitude following the command. You must be careful to guide her through the days ahead with care and understanding.

I particularly like the adventures from St Bride's for they are always logical but rarely very easy to solve without a number of attempts to unravel the many puzzles. They push the Quill parser to the very limit and several of your commands get a response that requires you to amplify your previous command rather than repeat it.

The program has a ram save facility in addition to the normal tape save. Use these often: Tape saving takes less than a thousand bytes, so it's very fast and will not slow down your progress.

Not every location has a graphic display but those that do are simple and very well thought out pictures. Again, this side of the program shows what can be done with a bit of thought and an off-the-shelf creator program.

The program is divided into two, with a code given to you at the successful completion of part one. There are plenty of locations and particularly in the second part it is vital to draw a map of where you have been. If you really stuck then St. Bride's offer a hint sheet free on receipt of a stamped addressed envelope.

Shocking

It's about time we saw another adventure from the fertile minds at Interceptor Software. Judging from the letters I get, Interceptor adventures are played across the greater part of Europe. They are renowned for their graphics and although the text is great in quantity, it supplies just enough interest to maintain most players' enthusiasm.

After Shock is at the least very topical. You are part of a team that designed the nuclear reactor that supplies power to your city. There is a fault in the backup cooling system but the primary system is functioning perfectly. No problem, you just put things in motion to investigate and rectify the failure.

In an underground test site deep in the desert to the east, the military test its latest nuclear warhead. This sets off a series of earth tremors. The city has expected an earthquake for years, as it is built over a fault line and no one is concerned at first as these tremors are on a very low scale.

You are one of the few who may be able to repair the unit before it runs wild.... can you get there in time?

This is where the adventure starts. You are in your office and must get out of the destruction all around you and reach the plant. The stairs are impassable with fires licking up from below and with the electricity supplies cut off the lift is a death trap.

The action hots up as you escape from the building but find there is no direct way out of the city. Perhaps you could make your way through the sewers or find a submarine to take you down the flooded underground railway tunnels. You may even think of riding one of the elephants from the zoo.

Whatever you do, you will find plenty of objects lying around that may be of use to you. There are a



number of locations where death is the next step, so save fairly regularly. There is no ram save but the tape is quick – use it.

There are lots of locations to explore and yet another of Interceptor's awkward multi-location mazes. Just keep your head and draw careful maps.

Graphics are not displayed at every location but when they do appear they are superb. Some of them contain an element of animation that adds greatly to what are surely Interceptor's best yet. The clutching hand extending up from a pile of debris and the oil pouring out of a stricken tanker are just two to look forward to.

In general the operating system is slightly quicker in action than in previous games, especially in displaying the graphics. It also seems to understand a greater number of words than before.

Sadly its use of the English language, in an adventurer's sense, is frustrating at times. In the instructions they talk about giving commands and the need to be grammatically correct. By this they deplore such inputs as GO BOAT and insist on CLIMB INTO BOAT.

This is all very well, but only if the range of phrases understood is great enough not to hold up play. It's more than frustrating if you can't get the computer to understand or carry out an action you know to be right.

The problem areas in After Shock are not that many but when you meet them they certainly cause a time lapse in gameplay. Two that held me up for a

while were DMJNC PVU PG MJGU and MVCSJDBUF UIF NFDIBOJTN. If you are stuck for words, solve this simple code – it may help.

If you have liked previous adventures from Interceptor you will like this one. If you are new to adventuring there are games that are more user-friendly, if not easier.

More help

As you all should know by now, I offer an adventure helpline that seems to work reasonably well. There are now several keen adventurers who add their immense knowledge to my meagre efforts. Time is always the problem, as post to the magazine has to be sent on to me and the Help League. All I would ask is that you ask specific questions rather than "could you please send me some tips on . . ."

There are many other ways in which help can be gleaned, one of which is the small privately run adventure mag. Several have been mentioned before, but there is always space to mention new ones.

Sadly, because these are often very part-time operations there is always the risk of them either running late or disappearing altogether. If this happens, please do not give up hope. They are rarely run to make any money, so no one is trying to get rich at your expense. Have patience and be thankful you have not got to compile that amount of adventure talk every month.

One that has been going for just over a year is The Questline Chronicles. This is run by Jean and Tony Thorne and not only do they produce regular Newsletters and Chronicles, but they also offer a telephone help-line. Newsletters are monthly and the Chronicles bi-monthly. Send them 50p and an sae (A4) and see what you think of them. Their address is: 34 Crossgates Ring Road, Leeds, W. Yorkshire LS15 8RD.

Another and quite different monthly magazine is Adventure Contact, run by Pat Winstanley. This is a publication devoted to helping adventure game writers. It includes all sorts of articles on the problems and solutions that readers have found in working with the various adventure creators.

There are also offers to review newcomers' work objectively and suggestions as to where to find a market for them. The issue I have seen is fairly packed with useful information and although the price has just gone up to £1 per month, it may well fill the bill if you intend to take your adventuring even more seriously. Pat's address is: 13 Hollington Way, Wigan WN3 6LS.

For help with adventuring write to: Bill Brock, Amstrad Computer User, 169 Kings Road, Brentwood, Essex CM14 4EF.

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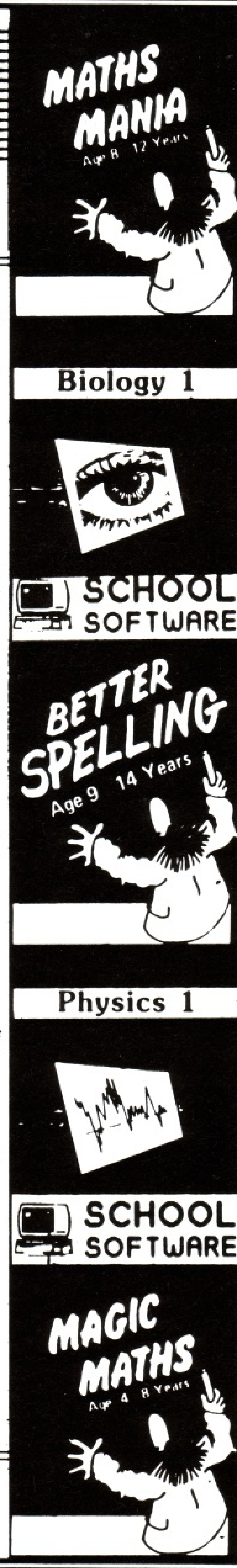
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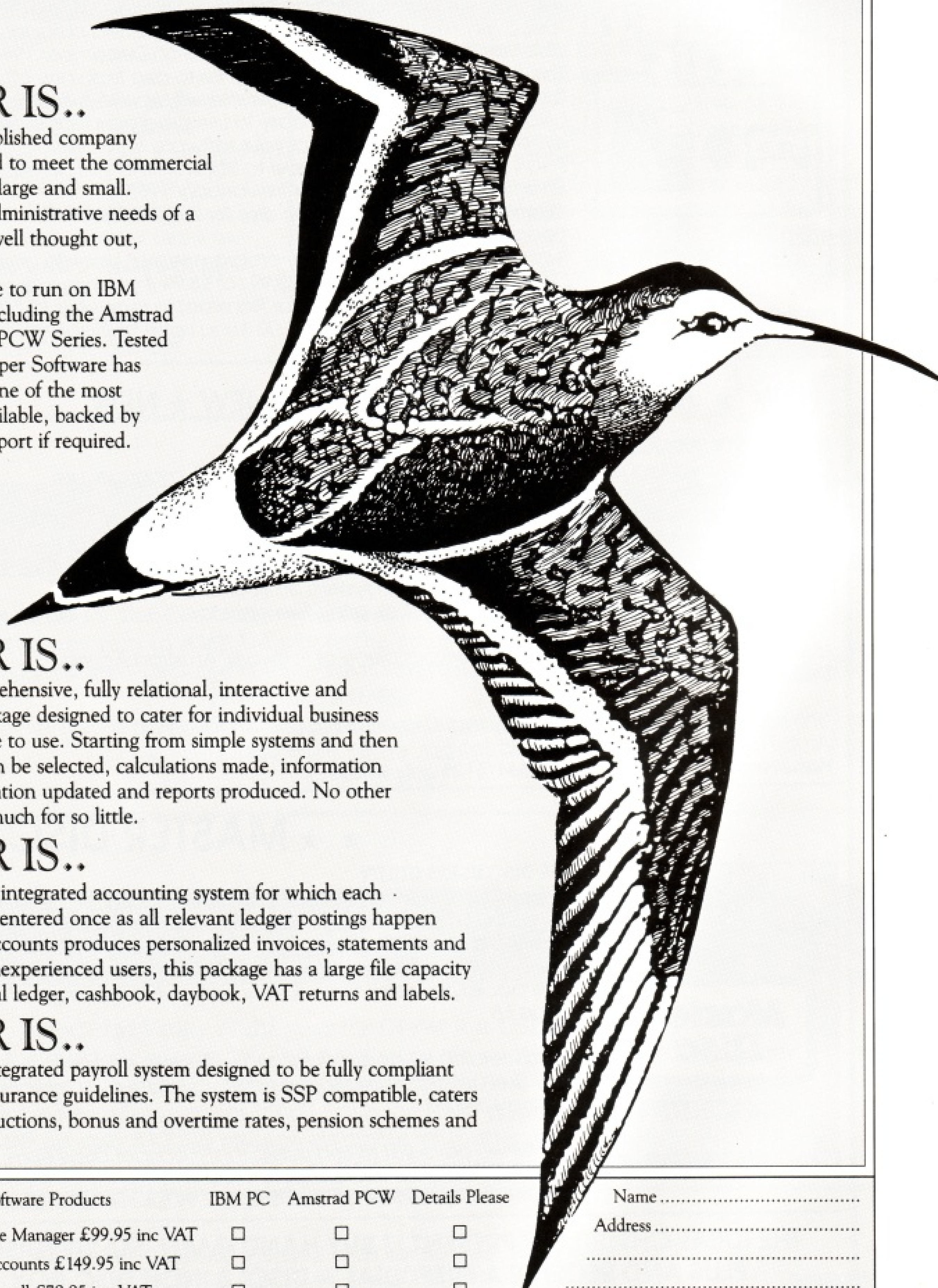
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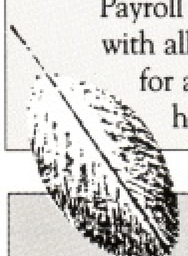
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Biggles


Jim is "time-warped" before a disbelieving Robbie

How an old-fashioned hero found a whole new generation of fans, by Pat Bitton, Marketing Manager at Mirrorsoft

The story of Mirrorsoft's association with Biggles began just about a year ago, as I write. Having licensed other – very different – characters for computer games in the past (the Mister Men, for instance), we received regular bulletins on the "licensing circuit". So we became aware of the Biggles project around about the time the film completed shooting in the summer of 1985.

The first step in any licensing exercise – or any other exercise which is likely to cost a fair amount of money – is, naturally enough, to take a look at the merchandise. So Steve Mercer, Mirrorsoft's Product Director, and I hot-footed off to Yellowbill Services, the film's production company, for an early viewing of the film.

This took place rather unceremoniously in a cramped basement recording studio and was a very different animal from the movie that finally hit the big screens in May this year. There were no special effects or music, and editing had hardly started. Even so, with the time-slips and the almost constant action both in the air and on the ground, the potential for a fast-moving and different computer game was most definitely there.

So it was back to the office for a long session with the spreadsheets – could we really produce a hit game AND make a profit? Being part of a large group of companies, we have to justify major expenditure to Kevin Maxwell, son of our chairman, Robert Maxwell.

After much head-scratching and not a little creative figure work, backed up with a marketing plan that made me wish there were 48 hours in every day, we managed to convince the powers that be that we really did have a winner on our hands.

The invisible heroes

Now we'd found our screen hero, the major task of finding the right storyboard and the right programmers for the job had to be completed – and fast. Such a high degree of sophistication is demanded of games nowadays, both in concept and execution, that we knew the combination had to be just right.

Four software developers were approached to submit storyboards and schedules, with a view to getting the game on to the streets around the time the film was scheduled for release in the spring of 1986.

Dalali Software came up with the goods for the main action sequences of the film with the time-slips, and H&H Software came up with some original ideas for the final part of Biggles' mission – to destroy the German secret weapon. But H&H could only handle the programming on Spectrum and Amstrad, so yet another software developer, Mr Micro, was roped in for the Commodore version of the helicopter sequences.

Managing three developers concurrently sounds like a nightmare in the making – one is usually bad enough – but if that wasn't enough, we eventually ended up with four as a result of a truly lucky coincidence. At an early stage of the promotional campaign I had organised a private screening of the film for selected computer journalists – including this magazine's editor, of course!

When we all arrived I discovered we'd acquired the renowned Tony Crowther and his partner in crime at WE Music, courtesy of Computer Gamer, in whose offices they'd been lurking when I did the final phone-round. After the showing, Tony said he'd love to write the music and sound effects for the game, so I whisked him back to the office and before you could say "Chocks away", we had four developers under contract.

But fortunately managing that lot was one thing I didn't have to do, so leaving Steve and Jon Norledge, Product Manager, to that particular fate, I took myself off to plan The Hype.

A military campaign begins

And like any real-life military campaign, the most important element is timing. When do the magazines go to press, when is the film being released, when is the record coming out, when are the books being published, how much advertising could we afford, how many shops would do window displays ... the list is endless, and each element has to dovetail smoothly into the others for everything to work as it should.

The first – and most problematic – hurdle to overcome was whether today's teenage game buyers have ever heard of Biggles. Of course all us ancient software developers, and most of the computer press writers, did grow up with the books – all 97 of them. But Biggles has been long banned by many education authorities and libraries as being a jingoist, a racist, and a host of other unpleasant things.

So was our childhood hero going to get a new lease of life courtesy of the humble micro? That was the challenge. Of course, the film helped a great deal, pitched as it was at the 8-18 audience, pretty much the same as the game, and with the addition of the time travel element and tongue-in-cheek humour to bring it (hopefully) into the same league

as Back to the Future and Raiders of the Lost Ark.

We knew by this time (early 1986) that the film's main music would be a Queen-type rocker called "Do You Want To Be A Hero?". If there's one thing every kid wants to be, it's a hero; if you finished the game, you became the hero who saved the world from a German victory in World War I. So we had our catch-phrase, and from that time onwards, the campaign centred around the concept of becoming a hero.

The hero prepares for take-off

By March the ads and posters were designed, the advertising bookings were made, and a whole merchandise package was being put together – T shirts, pilot's scarves, button badges, stickers, and carrier bags. Press coverage had started after the preview showings to journalists in February. The software world was beginning to buzz with impatience to see something of the game.

Rather than sending out unfinished copies of what was a conceptually – and programmatically (?) – complex game, we embarked on what proved a much more complicated exercise. With the invaluable assistance of the Bulletin 1000 team, we put together a two minute promotional video which cut together sequences from the film trailer and the game. Unfortunately, for the video editing team, the film trailer was made in very short sequences, which meant that all the editing had to be done frame by frame – poor old Martin Chater at Bulletin was nearly dead by the end of that little sortie.

The first public view

Luckily for us, the first UK Consumer Electronics Show was being held in London at the end of April, three weeks before we were due to release the first version of the game. After frantic last minute video copying, stand designing, poster printing, programmer persuasion and press releasing, we were ready to "go public" with the product.



Biggles with arch enemy Von Stalheim

We were also lucky enough to acquire the services of gorgeous hunk Neil Dickson, star of the film, for a couple of hours on our stand on the first day. What's more, our real-life hero even knew how to play a computer game – an all too rare piece of good fortune.

As CES is a trade-only show, we were able to show the game, the video, and all the other promotional bits and pieces to all the important buyers and distributors, as well as the press, in relative peace and quiet. Even so, I think we were still by far the busiest stand at the show.

We certainly did all the business – and more – we wanted to do during the three days of the show. We licensed Biggles (Beagles, Bigleux, Big Les – depending on where you come from) into 11 European countries through the Micropool consortium.

The John Menzies chain agreed to a window display nationwide at the end of May and to give away scarves and stickers, Boots offered prime shelf display space and posters for the customers for the month of June, and we decided on a four week promotional campaign through Bulletin 1000 for the Virgin shops and a dozen other independent software shops all over the country, plus window display competitions in 100 more shops.

Even the Daily Mirror woke up to what we were doing by this stage and came to an agreement with UIP, the film distributors, to give away 15,000 preview tickets for the film as well as agreeing to run a competition for the game. Neil was kept busy with interviews with national and computer press journalists the whole time – he even over-ran his allotted time!

Chocks away!

The first version of Biggles (on the Commodore 64) hit the streets as planned on Friday May 16, just a week before the film opened, and looked like being an instant hit – we were into our second production run before the weekend was out.

We at Mirrorsoft gave ourselves, our programmers, and selected guests (including three lucky young competition winners) a treat on May 22 – we all went off to the Royal Premiere, a great experience even though we had lousy seats. I'd also had an invitation to the post-premiere party (swank, swank), so Steve and I swanned off to that for a couple of hours before joining the rest of our party at the Cafe Royal for brandy and cigars (no, I didn't have a cigar).

They had a fabulous meal. We got two glasses of wine and a couple of canapes in a crowded room at the RAF Club surrounded by the Dahling Dahling mob (but I got a kiss from Biggles). I think Steve lost out on that one – at least I don't think he wanted a kiss from Biggles!

Staggered off home about two in the morning to prepare for yet another day of Biggles campaigning on the Friday – after all, we still had two more versions of the game to come out, and a lot more promotion to do.

Neil was wheeled in again to do a couple more signing sessions in the Virgin shops in Oxford Street. Naturally, it poured with rain, but those wonderful folks at Bulletin 1000 were out leafleting hapless tourists and other aliens with the sort of spirit Ginger, Algie and Bertie would have been proud of.

Biggles Two?

Rumour has it that plans are well in hand for Biggles Two, provisionally scheduled to start shooting in Thailand next January. I think I'll just book myself into the nearest padded cell for the next two years and refuse to come out until it's all over!

ACU



Biggles meets Jim Furgerson

Making Mallard fly

Mallard Basic, supplied with every PCW computer, is fast and powerful. But there are some little tricks which can make it much more fun. Cliff Lawson lends a programming hand.

One or two people have asked how to force the caps lock on from within Mallard Basic – usually you have to type [ALT] and [ENTER] to do this.

The following is a little program that could be incorporated as a subroutine that will allow you to switch the caps lock on. This isn't really necessary though, because Basic can convert input strings to upper or lower case using UPPER$ or LOWER$ anyway.

```
100 REM Switch caps lock on. Cliff Lawson
105 REM
110 DATA 2A,01,00,11,57,00,19,01,04,2F,E5,CD
120 DATA 27,00,DD,00,E1,CD,27,00,DA,00,C9,E9
130 addr=&H10
140 FOR i=addr to addr+&H16
150  READ n$
160  POKE i,VAL("&h"+n$)
170 NEXT i
190 CALL addr
```

Another common inquiry concerns protecting Mallard programs so that other users cannot break into them. To disable the [STOP] key and the use of [ALT] C from within a program just use the statement OPTION RUN near the start — this is actually in the manual, but I know people only read manuals when something goes really wrong:

```
10 OPTION RUN
20 PRINT "Hello"
30 GOTO 20
```

Once RUN this program cannot be stopped. This could then be used in a program that is saved with the ,P option so that you can only run it.

An example of this is RPED on side 2 – you can RUN this with no problem but it cannot be loaded and listed. And it cannot be broken into while running.

It is quite often useful to know how much free space there is on a disc before allowing a program to run. For instance, a program that will need to create one or two temporary disc files on drive m: would want to make sure that M: hadn't already been PIPed full of other things. The following program will find out:

```
100 REM Find free space, Cliff Lawson
110 REM
120 FOR i=&H30 to &H37
130 READ n$
140 POKE i,VAL("&h"+n$)
150 NEXT i
160 DATA 0e,2E,1E,00,CD,05,00,C9
170 POKE &H33,12 'Drive number
180 RESET
190 addr=&H30
200 CALL addr
210 n=(PEEK(&H80)+256*PEEK(&H81))/8
220 IF n<30 THEN PRINT "Not enough space on Drive M
  :":END
230 OPEN "R",1,"TEMP.$$$"
240 .....etc.
```

The drive number value in line 170 should be 0 for drive A:, 1 for drive B: and 12 for drive M:. Any other value will cause a BDos error and return to system level.

The number returned in variable n in line 210 is the number of k left on the disc being checked.

The RESET in line 180 is used to update the system information about the disc currently in the drive. It has a side effect – any open files will be closed, so be careful.

Without going to all the trouble of having a .SUB file and a copy of SUBMIT.COM on a disc it is sometimes useful to be able to run another program on leaving Basic. The following achieves this:

```
100 REM Chain to program. Cliff Lawson
105 REM
110 com$="dir a: [full]"+CHR$(13)+CHR$(0)
120 FOR i=&H30 TO &H37
130  READ n$
140  POKE i,VAL("&h"+n$)
150 NEXT i
160 DATA 0e,2f,1e,00,cd,05,00,c9
170 FOR i=1 TO LEN(com$)
180  POKE &H7F+i,ASC(MID$(com$,i,1))
190 NEXT i
200 addr=&H30
210 CALL addr
```

The com$ string in line 110 holds the command to be issued on leaving Basic. The CHR$(13) has the same effect as typing Return at the end of the line and the CHR$(0) must be there to mark the end of the string. Multiple commands can be performed because CP/M takes an exclamation mark on a line as a command separator. So:

```
110 com$="era temp.$$$!dir"+chr$(13)+chr$(0)
```

would erase the temporary file, temp.$$$ then give a directory before the 'A>' reappears.

Another common question – why do you only have 31k of space in Basic on a 256/512k machine? – is answered by saying that the chip that runs the whole show (Z80) can only converse with one block of 64k at a time.

It is very difficult for a program to run in a larger area because it is very difiicult to persuade this chip that its next instruction should come from a different bank of memory.

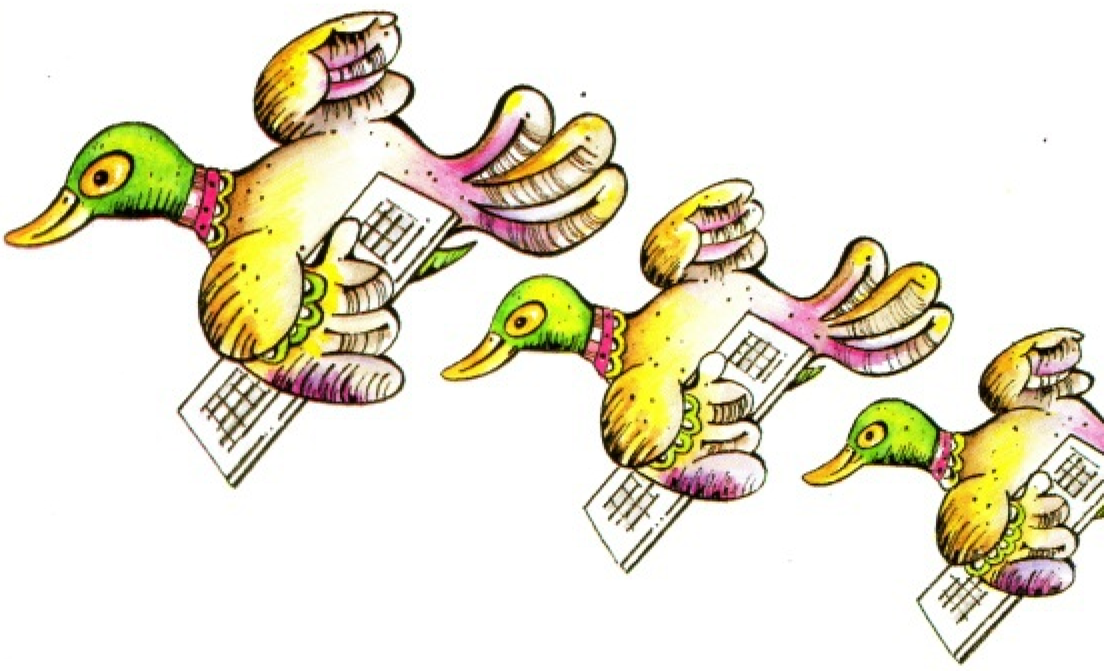
All is not lost though, you have plenty of memory on drive M: just waiting to be gobbled up by your program or data files. If you have a small program but lots of data then you can open up a file on drive M: using something like:

```
100 OPEN "R",1,"M:datafile"
110 ....etc.
```

This file could then hold up to 110k (364k) of data on an 8256 (8512). If your program is so large it will not fit into 30k then you can make use of overlays in drive M:. The following may give you the idea:

```
1000 print "The result is",result
1010 return
SAVE "M:result"
1000 temp=number1 + number2
1010 result=temp * 31
1020 return
save "M:sums"
1000 number1 = 23
1010 number2 = 4
1020 return
save "M:init"
new
100 chain merge "m:init",110
110 gosub 1000
120 chain merge "m:sums",130,all
130 gosub 1000
140 chain merge "m:result",150,all
150 gosub 1000
160 end
run
```

The last program makes use of the other three short programs in drive M:. Although too short to be of any benefit in this instance, if the three programs



saved in drive M: were each about 25k the nett effect would be like running a 75k program in only 30k of Basic program area.

This idea isn't new – famous programs like Wordstar have been using it for years!

The next couple of programs allow the system clock of CP/M to be set and read.

There is no checking for the input form in line 160 of the first program. It must be four digits long, padded with zeros where necessary. For example, 3:17 would be typed as 0317 and 11:04 as 1104.

Although the internal clock is 24 hour format, most people don't leave the machine on for 12 hours or more, so pm times might as well be typed in as their am equivalents. That is, for 16:41 use 0441.

```
100 REM Set system clock.
103 REM
105 FOR i=&H10 TO &H18
110  READ n$
120  POKE i,VAL("&h"+n$)
130 NEXT i
140 DATA 0e,68,11,20,00,cd,05,00,c9
150 addr=&H10
160 INPUT "Input the time in the form hhmm ",a$
170 hrs=(ASC(MID$(a$,1,1))–48)*16+(ASC(MID$(
    a$,2,1))–48)
180 mns=(ASC(MID$(a$,3,1))–48)*16+(ASC(MID$(
    a$,4,1))–48)
190 POKE &H22,hrs:POKE &H23,mns
200 CALL addr

100 REM Read system clock.
105 REM
110 FOR i=&H10 TO &H18
120  READ n$
130  POKE i,VAL("&h"+n$)
140 NEXT i
150 DATA 0e,69,11,20,00,cd,05,00,c9
160 addr=&H10
170 CALL addr
180 mns=PEEK(&H23):hrs=PEEK(&H22)
190 mh=INT(mns/16):ml=mns–16*mh
200 hh=INT(hrs/16):hl=hrs–16*hh
210 PRINT "The time is ";:PRINT USING "#";hh,hl,mh,ml
```

While it is quite possible to set up key translations outside Basic using the SETKEYS.COM utility, there may be times when you wish keys to be changed dynamically while a program is running.

For example you might want to set 01 so that it holds the current date. This would then remain in force once a return to the system level is made.

```
100 REM Setup key translation. Cliff Lawson
110 REM
120 bse=&HF500:bseh=INT((bse+65536!)/256):bsel=
    bse–256*bseh
130 INPUT "Todays Date : ",strng$
140 key=2:expns=&H81:state=1
150 MEMORY bse–1
160 FOR i=bse TO bse+&H22
170  READ n$
180  IF n$="**" THEN POKE i,bseh ELSE POKE i,VAL(
    "&h"+n$)
190 NEXT
200 DATA 2A,01,00,11,57,00,19,22,21,**,01,02,80,16,01,
    cd,20,**
210 DATA d7,00,01,04,80,21,23,**,cd,20,**,d4,00,c9,c3,
    00,00
220 POKE bse+&HB,key
230 POKE bse+&HC,expns
240 POKE bse+&H16,expns
250 POKE bse+&HE,state
260 POKE bse+&H15,LEN(strng$)
270 FOR i=1 TO LEN(strng$)
280  POKE bse+&H22+i,ASC(MID$(strng$,i,1))
290 NEXT
300 CALL bse
```

The variable key holds the hardware key number of the key to be set and expns holds the value of the expansion token to use (in the range &h80 to &h9f). State indicates which shift state the key is set for – a binary value with the following significance:

1	Normal
2	Shift
4	Alt
8	Shift and Alt
16	Extra

The actual text to assign to the string is held in the variable strng. Carriage returns can be included using CHR$(13).

Owners of the CPS8256 interface may like to be able to communicate with the device from within Basic. The next program implements routines to allow this.

However, one thing to watch is that even a tight loop in Basic is unlikely to be able to source or receive characters at much above 1200 baud flat out. For higher baud rates some form of flow control would have to be employed.

```
100 REM SIO communication routines. V A Olliver 1985
105 REM
110 DATA e5,fe,02,20,1e,0e,03,cd,05,00,e1,77,23,36,00,c9
120 DATA e5,fe,02,20,0e,0e,07,18,ee,e5,fe,02,20,05,5e,0e
130 DATA 04,18,e4,e1,c9
180 code=37
190 MEMORY HIMEM–code
200 FOR a=1 TO code
210  READ b$:POKE HIMEM+a,VAL("&h"+b$)
220 NEXT
230 DEF USR=HIMEM+1 : DEF USR1=HIMEM+17 : DEF
    USR2=HIMEM+26
900 REM
910 REM Example terminal program starts here -
920 REM
930 a%=0 : IF USR1(a%)=255 THEN PRINT CHR$(
    USR(a%));
940 a$=INKEY$ : IF a$<>"" THEN a%=ASC(a$) : x=
    USR2(a%)
950 GOTO 930
```

The program gives three routines, USR will wait for a character to appear from the RS232. USR1 returns 255 if a character is available and USR2 outputs a character. Their use is shown at the end of the program where a simple terminal program is shown.

Finally, the following short program demonstrates how a fast and smooth scroll effect can be achieved, using a facility of the hardware that allows an offset to the base of the roller ram to be set.

By outputputting values between 0 and 255 to I/O address F8 the screen will scroll one pixel line for each increase in the value output:

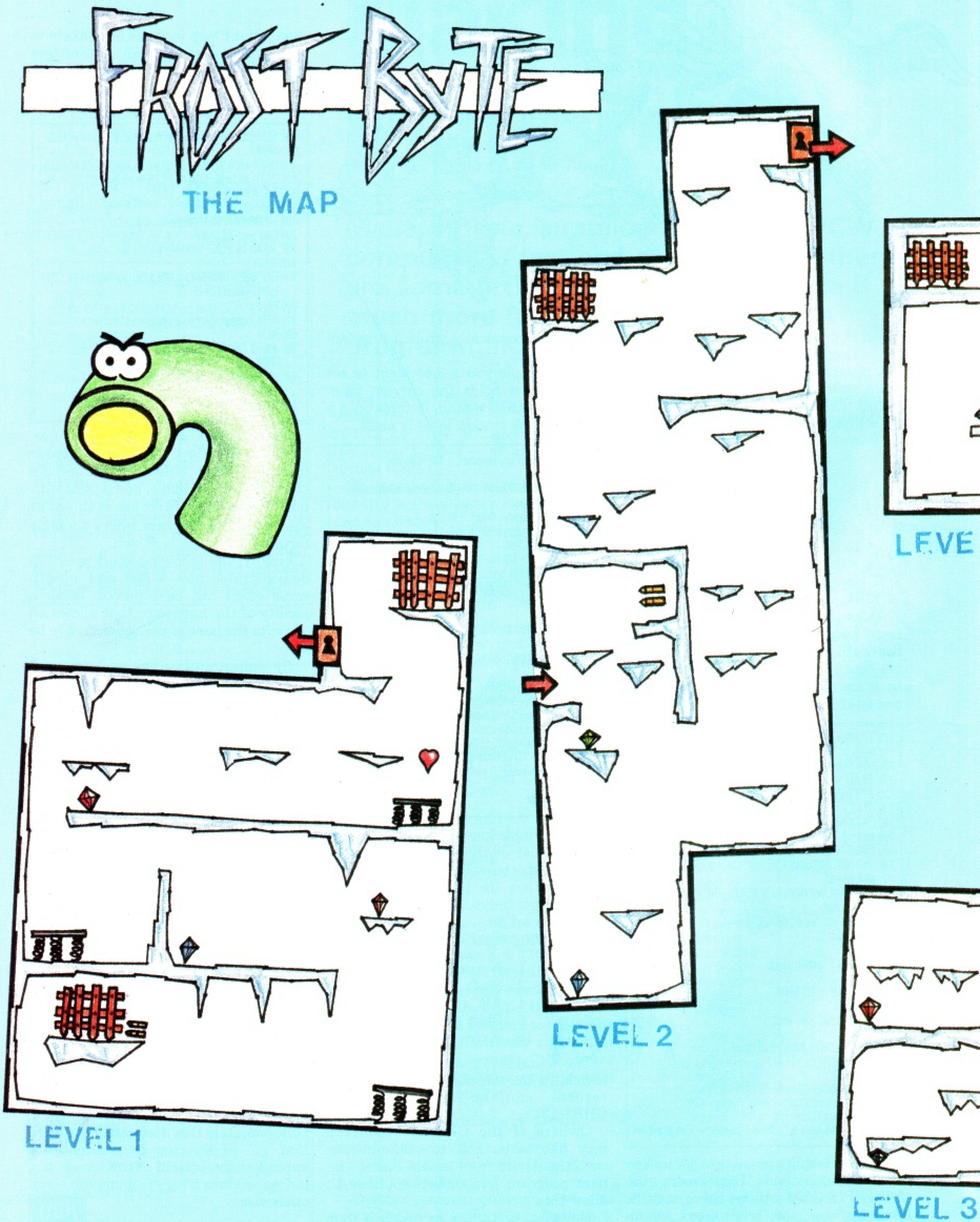
```
10 FOR i=0 to 255
20  OUT &hF8,i
30 NEXT i
40 OUT &hF8,0 : REM set the screen back to normal.
```

No doubt this idea could be developed within your own programs. For example, use a FOR NEXT loop to output the values from 0 to 31 to the port before printing four lines to smooth scroll the screen four lines. Finally output 0 to F8 after the four PRINTs to set the offset back to normal. That is:

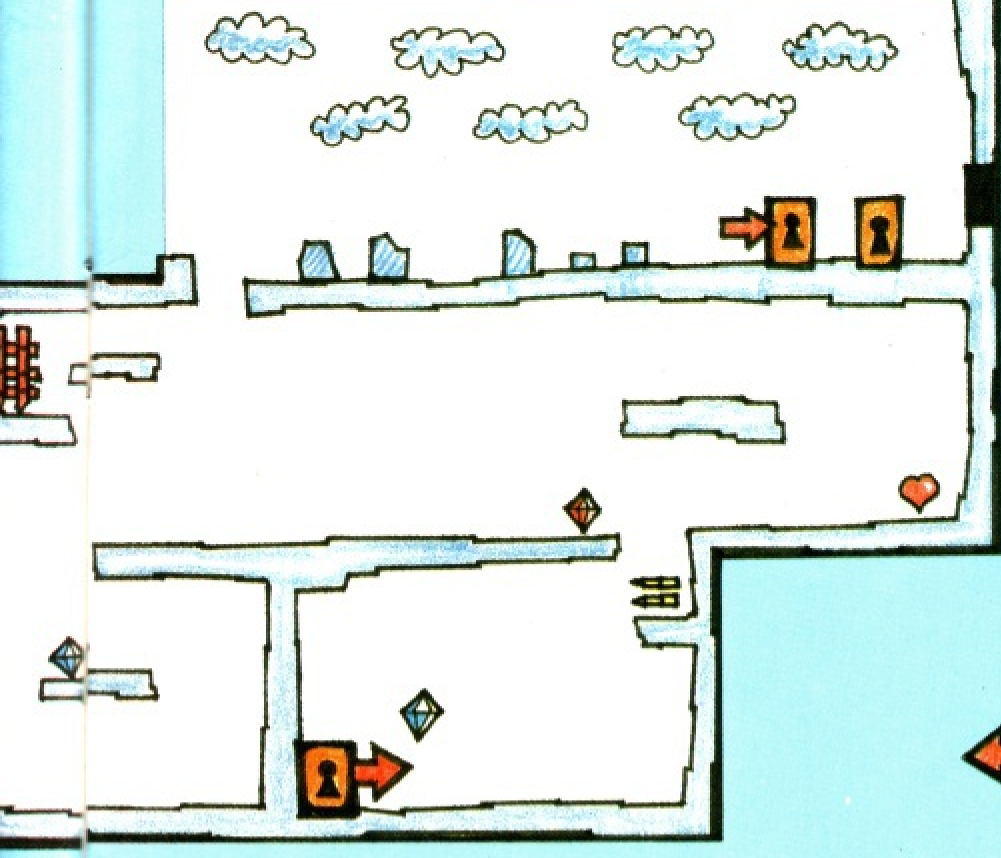
```
10 PRINT "hello"
20 GOSUB 100
30 PRINT "goodbye"
40 END
100 FOR i=0 TO 31
110 OUT &HF6,i
120 NEXT
130 PRINT:PRINT:PRINT:PRINT
140 OUT &HF6,0
150 RETURN
```

Unfortunately this does cause the lines that go off the top to momentarily appear at the bottom of the screen but it does produce a very fast/smooth scroll otherwise.

ACU

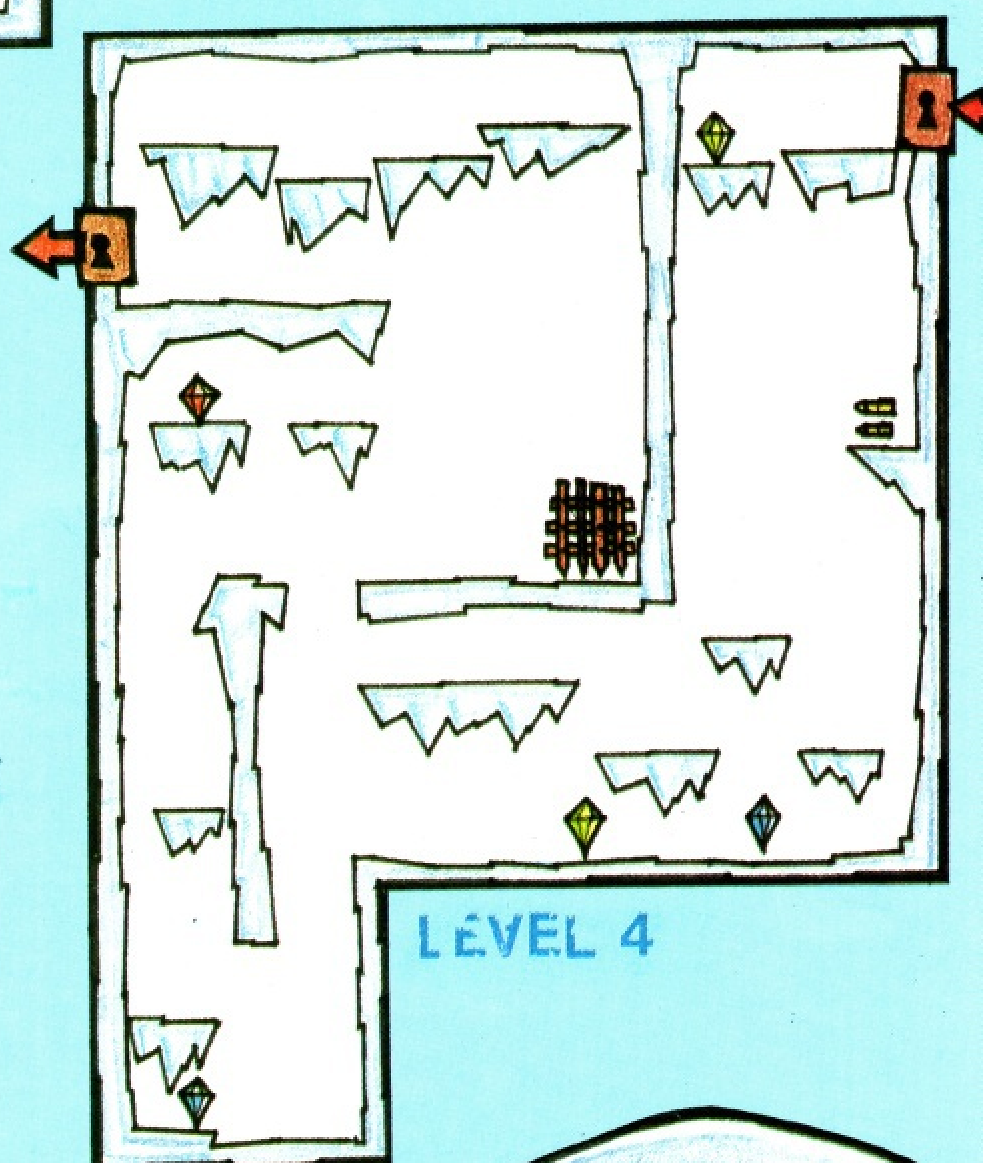

FROST BYTE
THE MAP
LEVEL 1
LEVEL 2
LEVE
LEVEL 3

MAPPED BY
IAN BOFFIN/
JUSTIN GARVANOVIC
ILLUSTRATED BY
JOHN ALEXANDER

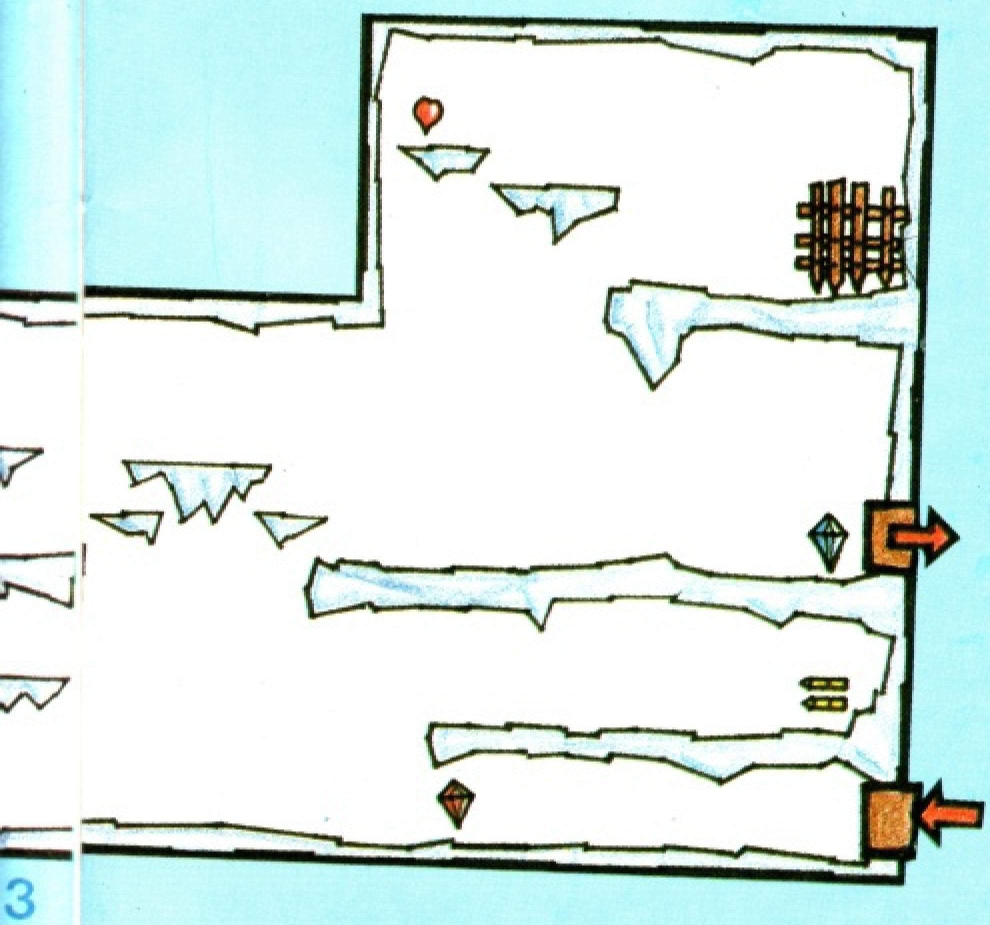


VEL 5

Hooray, you've broken free of the cage, now to rescue your frozen friends. This map will make life easier. Look before you lunge by cribbing the catacombe cartography.



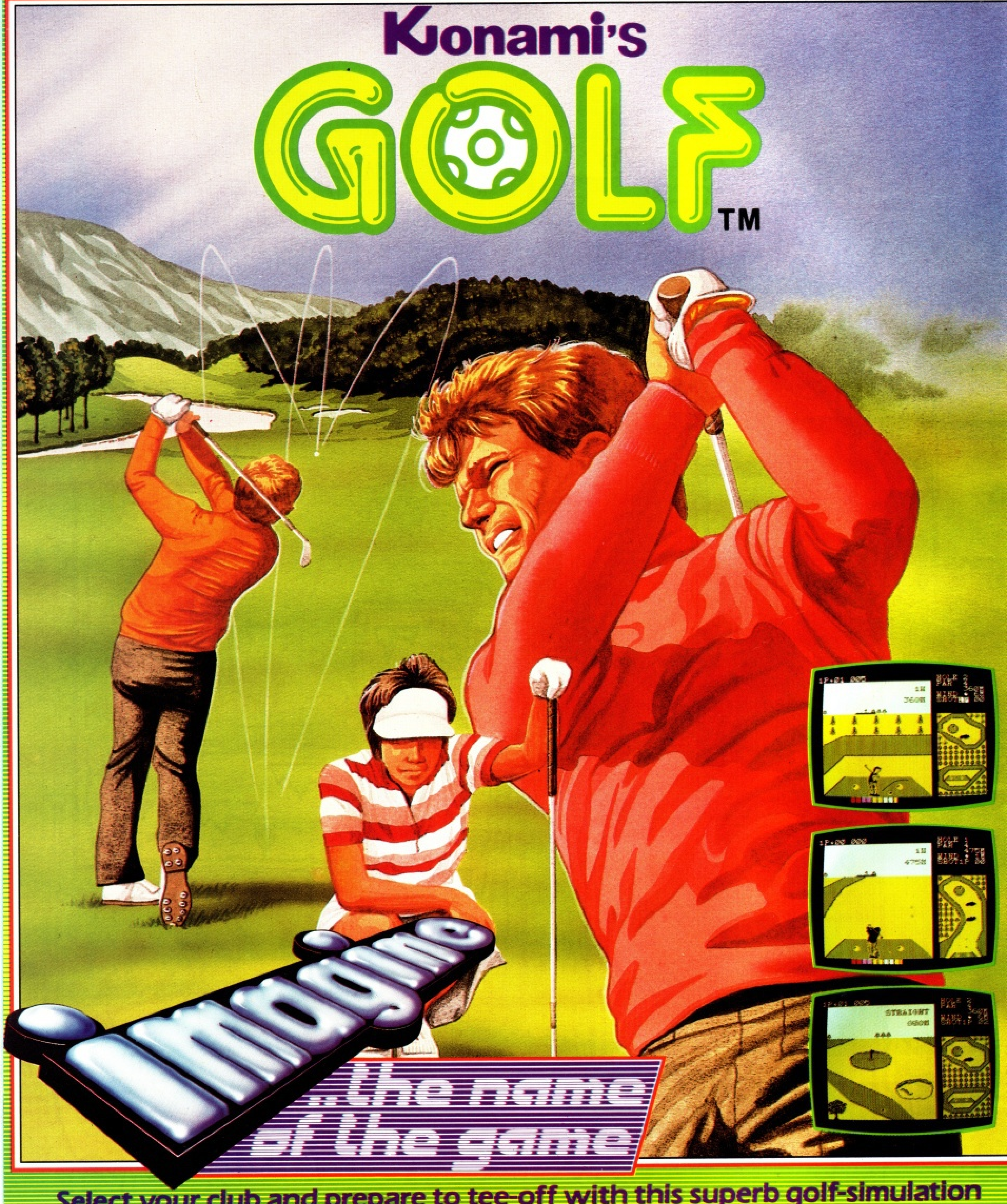
LEVEL 4



3



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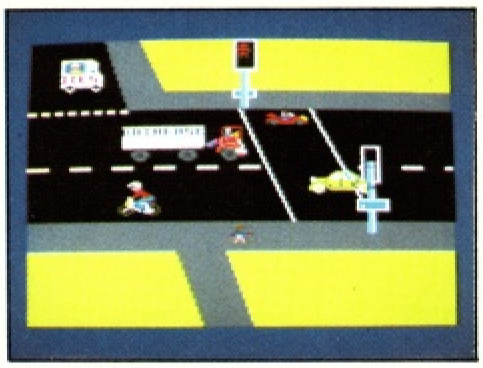
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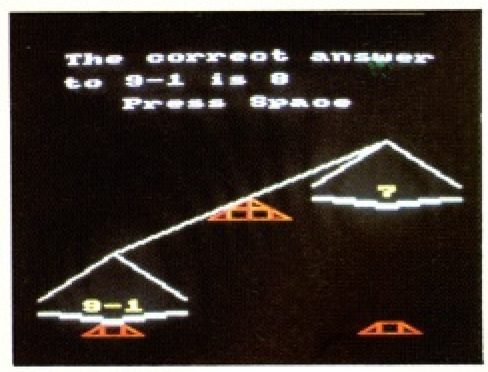
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Derrick
Fred's Words
Hilo
Maths Test
Mouser
Number Signs
Seawall
Super Spell



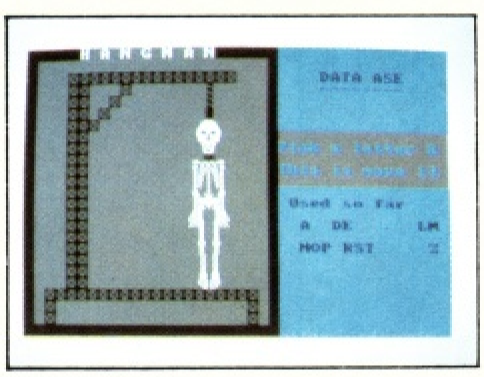
NUMBER SIGNS
Provide the correct arithmetic sign and aim to score ten out of ten



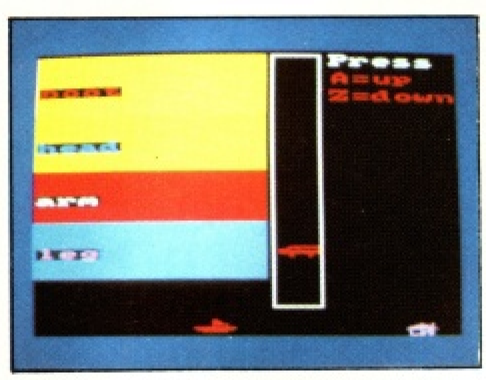
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Learn maths the fun way. Type in the answer to balance the scales

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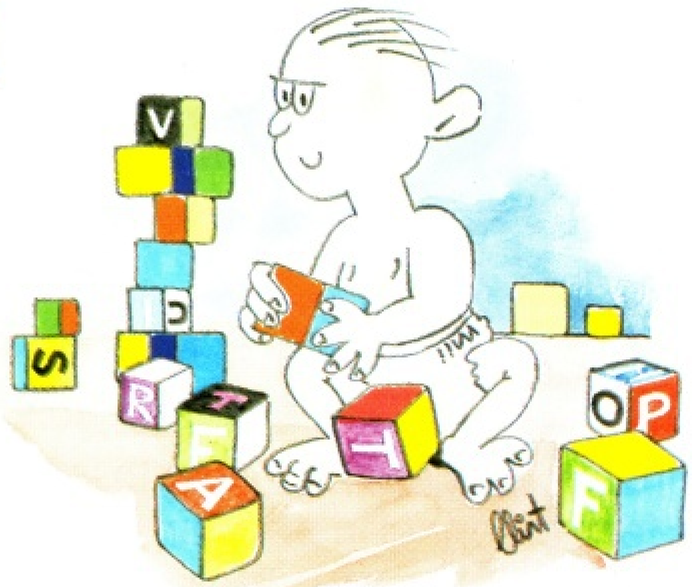
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ACU1



Arithmetic at its most Basic

This month it's the three Rs: reading, 'riting and 'rithmetic. Peter Green is doing the writing, you're reading and the subject is addition and subtraction.

When people think of computers it is often as omniscient number-crunchers, silicon prodigies that can out-think the most talented university mathematician.

In reality, the arithmetic abilities of a chip such as the Z80 are very rudimentary. You get addition and subtraction only, limited to a maximum of 16 bits – that is, a signed range of +32,767 to –32,768, or an unsigned range of 0 to 65,535.

In fact the apparent skill of the computer in actually doing its computing is due to two other factors.

Firstly, the chip can strut its mundane stuff at enormous speeds, a million operations a second in the Amstrad.

And secondly, the high-precision arithmetic, trigomometric and logarithmic functions provided in higher level languages such as Locomotive Basic exist only because clever programmers can use the rudimentary operations to build up more useful routines.

For example, the existence of addition means you can also have multiplication, since 5 times 4 means 5+5+5+5. It isn't actually done this way in machine code, though (imagine how long 100 billion times 50 billion would take to calculate!).

Programmers employ the same long-multiplication method you would use on paper and pencil in base 10, shifting and multiplying one operand by each digit in the other, then adding up the partial products (see Figure 1).

Long division uses a similar process and since the Z80, like all microprocessors, has a comprehensive set of bit-shifting operations, we can get the four basic arithmetic functions quite easily.

With those tools more complicated routines can be built up, often using series expansion approximations. For example, if we want SIN(X) we can use the mathematical rule that

$$\sin(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \ldots$$

where 3! is factorial 3=3*2*1. We can calculate each term in the series using only our four basic functions and continue off to the left until the result is sufficiently accurate for our purposes.

For still easier calculation, real computers may use Chebyshev polynomials which are simpler to calculate but cannot be explained here ('cos I don't understand them!).

If you think I'm leading up to a full floating point arithmetic package as this month's example program – think again!

With all the range checking, multi-byte precision arithmetic, conversion between human decimal and computer binary bases and so on, a full set of routines is enormously complicated and difficult to write.

Even the professionals can get it wrong: the ZX Spectrum has several documented bugs: It will happily announce that INT(-65536) is –1, and never rounds up the final bit in a division correctly.

My routine of the month is a trifle less ambitious but nonetheless useful. First, let's look more closely at the Z80's arithmetic functions.

To sum up

The arithmetic routines available are simply addition and subtraction, either taking the carry flag into account or ignoring it.

There is also the CP (compare) instruction which sets the flags exactly as if it had performed a subtraction, but it does not store the answer in the A register.

This is the equivalent of the Basic "IF A = number", "IF A < number" type of test, where the value of A is not changed by the subtraction required to make the test.

The ADD instruction can be used with the A register, the HL register pair or the IX and IY index registers as

BASE 10		BASE 2	
1428		100110	(38 decimal)
x 306		x 101	(5 decimal)
8568	(1428*6)	100110	
0	(14280*0)	0	
428400	(142800*3)	10011000	
436968		10111110	(190 decimal)

Figure 1: Long multiplication in base 10 and base 2. In each case shift one number and multiply by the corresponding digit in the other, then add to obtain the result. Since binary numbers only have ones and zeros we simply shift, then add.

the accumulator.

It adds an operand to the value in the accumulator and stores the result in the accumulator. For the 16 bit registers, the number to be added must held in certain of the other registers, although A can be added to an immediate piece of data (ADD A,3) or to a byte in memory pointed to by a 16 bit register.

ADC (ADd with Carry) is only available for the A and HL registers and works in the same way except that if the carry is set it is included in the sum.

This allows the carry to be included correctly at each stage of a multibyte addition (that is, when adding up two strings of bytes in memory which represent a number too big for a single 8 or 16 bit register – such as an arcade game score).

SBC is SuBtract with Carry, and again can only be used with A or HL as the accumulator. It subtracts the operand and, if set, the carry too. Thus the carry acts as a "borrow" and SBC can be used for multibyte subtraction.

SUB is only available on the A register. Like CP it performs a subtraction without considering the state of the carry flag, but unlike CP it does store the result in the A register.

Testing times

How does a subtraction help in testing the value of a number? Well, the carry and zero flags in the F register are set to values which allow the program to make jumps as follows:

- CP X (means 'perform A – X')
- If A is less than X then Flags set to NZ, C (non-zero, carry set)
- IF A equals X then Flags set to Z, NC (zero, carry clear)
- IF A is greater than X then Flags set top NZ, NC (non-zero, carry clear)

From these basic possibilities you can build up more versatile routines – for example, testing whether A lies within a range of values.

There is no 16 bit version of the CP instruction but as my example program this month shows, you can easily create one yourself by using SBC HL,DE and preserving HL on the stack around the subtraction.

The flags will be set in exactly the same way as the table above.

To wrap it up

This month's routine is a module that lets you print text on the screen by using word-wrapping so that whole words are not broken over the end of a screen line.

If a word won't fit the program does a carriage return/line feed and prints the word at the start of the next line.

This is a feature of any word processor worth its salt, so that you can type quickly without having to press Enter at the end of each line as you would on a typewriter.

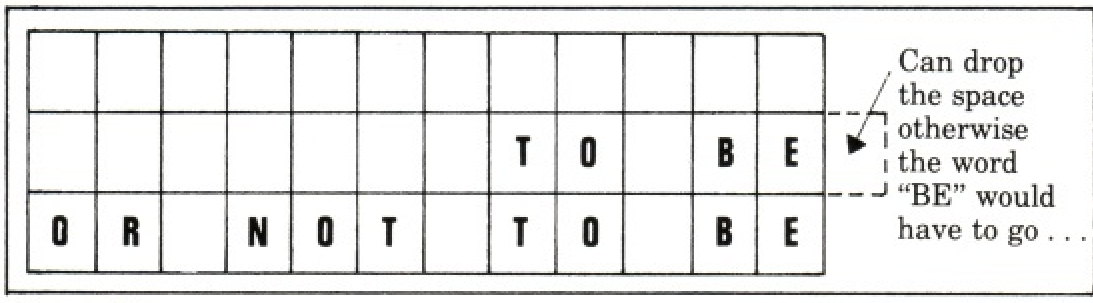


Figure II

However, it also offers considerable advantages as a general string printing routine.

Basic programmers know that to print more than one line of text they have to check where the words go on a line and insert padding spaces or CHR$(13),CHR$(10) sequences as required to prevent word breaks.

That wastes storage space and it only gives the right text format for one particular screen width.

On a machine like the Amstrad, where there are three different basic screen widths, plus all the different window sizes you can set up, a general purpose module is essential.

After all, another of my fundamental laws of programming is: The computer is dumb and doesn't mind boring, hard work. So make it do as much as possible.

Listing 1 gives the assembly language program, called outchar, plus a short demo routine which uses it to print a block of text across 80 columns, and then 40 columns.

You use the routine in exactly the same way as you would TXT—OUTPUT. The character to be printed is in A, and all registers are preserved after the CALL.

The algorithm (fancy name used by programmers meaning "set of rules") is quite simple. A variable, xpos, is used to store the number of characters left to the end of the line in the current window.

Instead of printing characters directly to the screen, they are stored in a temporary buffer, called outbuff.

A complete word is ready to go to the screen if and only if a space is sent to the buffer. Then the word length is checked against xpos.

If it fits it's printed, otherwise the routine moves the cursor to the start of the next line, resets xpos and prints the word.

You can see that the arithmetic routines are used to check for the overflow of outbuff and to calculate the length of the word and whether it will fit on the line.

The size of outbuff has to be bigger than the biggest word you're going to print. Twenty-five characters seems safe, but as an added failsafe the routine will dump the buffer to the screen immediately if it should fill up.

This works on the principal that it's better to have the screen look a little odd than lose some text entirely.

One problem occurs when trying to start a new paragraph. You can't just print a CHR$(13),CHR$(10) sequence as you would normally.

Although the text cursor will move to the next line on the screen, xpos won't be reset and the next line will wrap too soon.

A special routine, newline, is provided which makes sure the last word is printed (in case a paragraph doesn't end in a space), then does the carriage return correctly.

Indeed, sending any cursor control character (backspace, home cursor and so on), will confuse the routine, so avoid them.

A slightly sophisticated approach is taken to the word-fitting. If the word did not end in a space (that is, the buffer is being dumped by CALLing outflush), a straightforward comparison is made.

If the last character was a space the check will leave the space off if the word will just fit on the line without it – so the last word on a line can butt right up against the border, as in Figure II.

This is an advantage on narrower windows, as it makes the most efficient use of the width available and helps to cut down on large gaps on the end of each line.

The unusual way that the nextline routine does a carriage return is because of the Amstrad's cursor validation system.

When you print to the very end of the line the cursor is left hanging outside the right-hand end of the window.

If you then try to print a carriage return, the cursor is first validated by moving it to the start of the next line, then the actual CR is performed.

This gives the occasional double spacing on screen, hence the use of the firmware routines TXT_GET_CURSOR and TXT_SET±CURSOR.

Notice that every time the window width is changed you have to set up the variable winwidth yourself. As an exercise for readers with the Firmware Guide, use TXT_GET_WINDOW to find the reset value for xpos.

Will you need to save any of the registers that get corrupted by PUSHing and POPping them on the stack? If so, which?

```
org &8000

LD A,2
CALL SCR_SET_MODE
LD A,80
LD (xpos),A
LD (winwidth),A
LD HL,outbuff-1
LD (outptr),HL

LD HL,text
CALL print

LD A,40
LD (winwidth),A
CALL newline
CALL newline
LD HL,text

.print
LD A,(HL)
INC HL
OR A
RET Z
CALL outchar
JR print

TXT_OUTPUT      EQU &BB5A
TXT_SET_CURSOR  EQU &BB75
TXT_GET_CURSOR  EQU &BB78
SCR_SET_MODE    EQU &BC0E

.outflush
PUSH AF
PUSH BC
PUSH DE
PUSH HL
PUSH IX
LD HL,(outptr) ;get current position in outbuffer
JR outchar1

.outchar
PUSH AF
PUSH BC
PUSH DE
PUSH HL
PUSH IX
LD HL,(outptr)      ;get current position in outbuffer
INC HL              ;move outpointer up the buffer
LD (HL),A           ;store character in output buffer
LD DE,outbuff+24    ;DE = end of buffer
OR A                ;clear carry
PUSH HL
SBC HL,DE           ;compare them
POP HL
LD B,25             ;buffer length in case of overflow
JR Z,print_buffer   ;if zero, buffer is full so print it out
CP 32               ;is character a space?
JR NZ,skip1         ;if not, quit to add another character to the
                     buffer
.outchar1
LD IX,xpos          ;point to xpos for use later
LD A,(HL)           ;get last character in buffer
OR A                ;clear the carry (no 16-bit SUB available)
LD DE,outbuff
SBC HL,DE           ;HL=outptr-outbuff (ie, length-1)
JR C,skip2          ;buffer empty if carry set

CP 32               ;was last character a space?
LD A,(xpos)         ;get xpos, distance to end of line
LD B,L              ;length-1 to B
JR Z,spc

INC B               ;B=length
CP B                ;([xpos] distance to end of line) - (no. of chars)
JR print_buffer

.spc
CP B                ;([xpos] distance to end of line) - (no. of chars - 1)
JR Z,print_buffer   ;string fits exactly so print it
INC B               ;else include trailing space

.print_buffer
CALL C,nextline     ;if too many characters for current line, move to next
LD HL,outbuff       ;point HL to start of outbuffer
LD A,B
OR A                ;test if A=0
JR Z,skip           ;0 counts as 256, so don't try to print 0 characters!
.print1
LD A,(HL)           ;get character from output buffer
CALL TXT_OUTPUT     ;print the character
INC HL              ;point to next character
DEC (IX+0)          ;decrement xpos
CALL Z,nextline     ;if xpos is zero, do a CR/LF
DJNZ print1         ;before printing next character

.skip
LD HL,outbuff-1     ;reset outpointer

.skip1
LD (outptr),HL      ;save current outbuffer position

.skip2
POP IX
POP HL
POP DE
POP BC
POP AF
RET

.newline
CALL outflush       ;dump outbuffer

.nextline
PUSH AF
PUSH HL             ;save AF,BC,HL
CALL TXT_GET_CURSOR
LD H,1              ;do a CR without validation forcing an unwanted extra CR
CALL TXT_SET_CURSOR
LD A,10
CALL TXT_OUTPUT     ;do a line feed
LD A,(winwidth)
LD (xpos),A         ;reset xpos to winwidth
POP HL
POP AF
RET

.outptr             DEFW 0
.outbuff            DEFS 25
.xpos               DEFB 0
.winwidth           DEFB 0

.text
TEXT "A piece of text to demonstrate the amazing word wrap routine. The "
TEXT "quick brown fox jumped over the lazy dog's back. Peter Piper "
TEXT "picked a peck of pickled peppers. The square of the hypotenuse of "
TEXT "a right-angled triangle is equal to the sum of the squares on the "
TEXT "other two sides. Roses are red, violets are blue, Sugar is sweet: "
TEXT "Where's my 1512? ",0
```

Listing I

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The games that PCs play

John Lettice flies fighters, plays golf, discovers America, breaks codes, dodges boulders – and picks his favourite games

The next few months should see the release of a large body of games software for the Amstrad PC in particular and IBM clones in general. It will take time for the games software industry here to adjust to the PC's move out of the corporate market and into the home but in the meantime there's a fair amount of US originated entertainment software available.

An increasing number of the existing titles can now be obtained through UK software houses, though some are still only available on import. It's often worth lashing out on an import but bear in mind that some of them are rubbish, so take care.

Airborne antics

Flight simulators have always been big on the PC but in recent years there's been a tendency to move towards combat simulators – gives you something to do between take off and landing I suppose. Foremost in this category are Jet from Sublogic and F-15 Strike Eagle from Microprose.

Strike Eagle is the more overtly commercial of the two. It's technically a simulation of the McDonnell Douglas F-15, but as the combat scenarios cover various periods from Vietnam to Iran (or, as the manual chillingly misprints it, Iraq), we're actually talking about several aircraft types here. The common factor is your objective – to blow the enemies of Reaganite America to bits.

This soggy liberal does however find the game eminently playable. It's structured as a series of missions and although you can try any one you like they come in a natural progression of difficulty.

They start with blowing up Colonel Gaddafi, move through various middle eastern scenarios, then Vietnam, then on to Ayatolla alley.

In most cases you have to fly through a hail of ground based missiles and swarms of enemy fighters to a given target, bomb it, then return to base for your next mission.

It has its shortcomings on the simulation side, but the compromises make it an immensely playable game, more than just a simulation.

Jet is a no-compromise simulation. While the cockpit display is more difficult to use than Strike Eagle's the views, particularly of the ships you're attacking in the carrier-based scenario, are superb.

Jet is a lot trickier to fly, allowing you to get into some pretty unpleasant spins and the opposition is a lot nastier.

It also has the advantages of letting you dogfight (Strike Eagle doesn't allow you enough fuel to do this) and of course to take off and land, while in Strike Eagle you simply fly to and from a marker at the requisite height. More of a game for the purist, but well worth having.

Feet on the ground

If you've seen Leaderboard on the ST, Activision's Championship Golf may disappoint you at first. The graphics aren't anywhere near as impressive, but technically the PC program is a much better simulation.

And unless you've got three eyes that can operate independently it's a lot trickier to play.

Various golf courses have been produced for it, although as far as I know only Pebble Beach is readily available here.

Play involves a series of stages, starting with a plan view of the relevant hole, where you adjust your shooting angle. You select a club, then move on to a three window view of your swing.

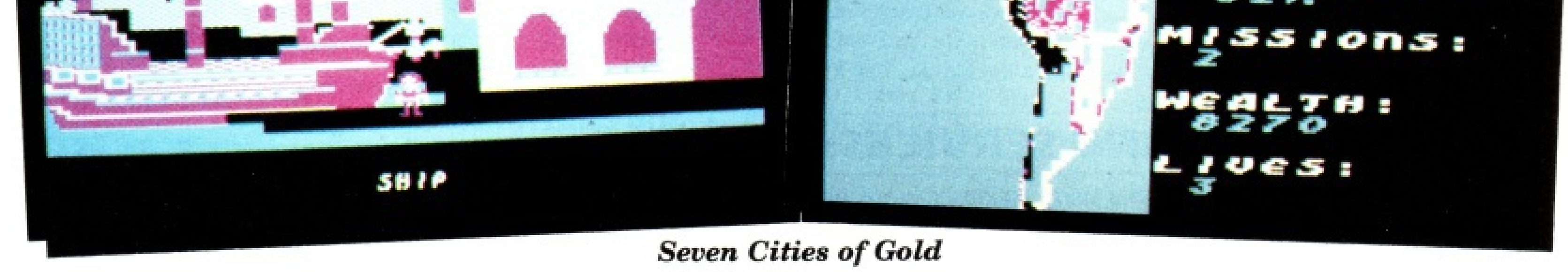
On the left you see yourself in profile, while on the right there are two views of how your swing is connecting with the ball. Trying to watch all of these is a sure way of muffing your shot.

Again this is a simulation first and game second. It takes longer to get the hang of – I've yet to get round in anywhere near par – but for sustained entertainment value it's hard to beat.

Historical Elite

Seven Cities of Gold is something you're less likely to have direct experience of. You haven't conquered the Inca Empire recently, have you? No, neither have I, although it's not through want of trying.

The game starts in Spain in the 15th Century and your mission is to fit out a ship, then in the next 40 years or so



Seven Cities of Gold

discover and conquer as much of America as you possibly can.

Xenophobes will be disappointed to learn that leaving it undiscovered isn't an option...

There are four main parts to the game:

Spain, where you fit out your expedition, get abused by the king and consult your maps.

Sea travel, where you can run into storms and unexpected coastlines (bear in mind Columbus probably changed down to first gear before he landed).

Land travel, where you can discover various features, including gold mines and mythical empires.

And villages, towns and cities, where you trade or conquer as you wish.

Which you choose is important. And conquest may get you gold but makes it difficult for you if you ever want to go back to the areas you've devastated.

Playing at Master level – a mistake, I think – I've so far made various attempts on the Incas (modern day Peru).

These have included overland from Guyana (porters ran off on the way back), round the Horn (crashed three of the ships and the fourth marooned me in Chile) and up the Amazon (headhunters wouldn't sell me enough food).

I'm sure it can be done, so I'll keep going back, and that's the measure of a good game.

If discovering America palls, the game has a "create new world" facility that chugs out a completely new one every time. So if you use this you'll probably be as surprised as Columbus was . . .

The famous Bill Budge

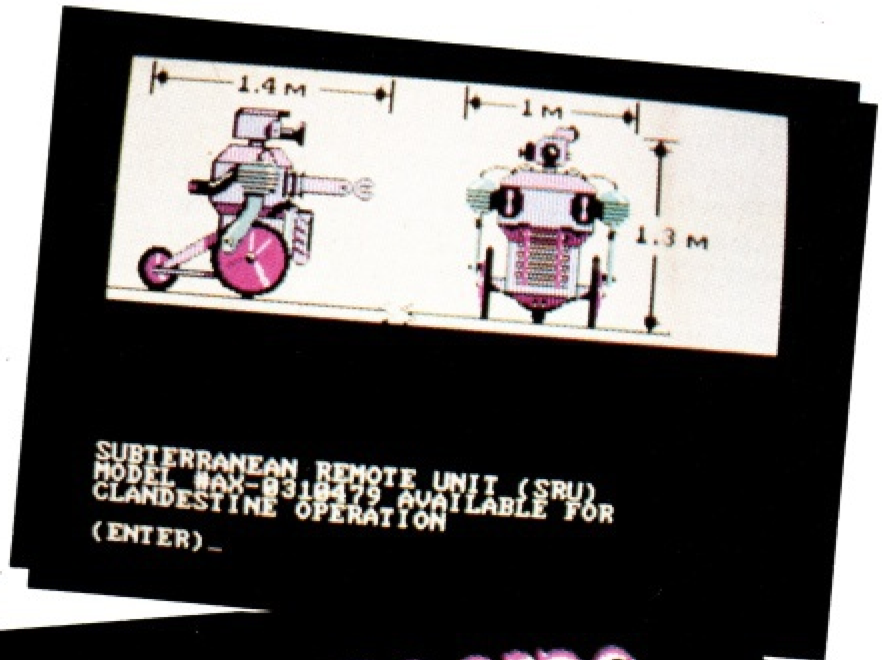
Pinball Construction Set is part game and part exercise in design. It comes with five demo pinball tables you can play to your heart's content, and the facility to modify the tables or build completely new ones of your own.

This is done with a parts and tools library that's stacked on the right hand side of the screen. In Macintosh fashion you select bumpers, slingshots, lanes, spinners and the like for positioning on the table.

You won't be able to use the Amstrad mouse for this, unfortunately, as like many IBM games it boots straight from power-up, so you can't install the mouse.

However, the toolkit can be manipulated with cursor keys and fire, which in this case is caps shift. This may strike you as peculiar until you remember how you play pinball.

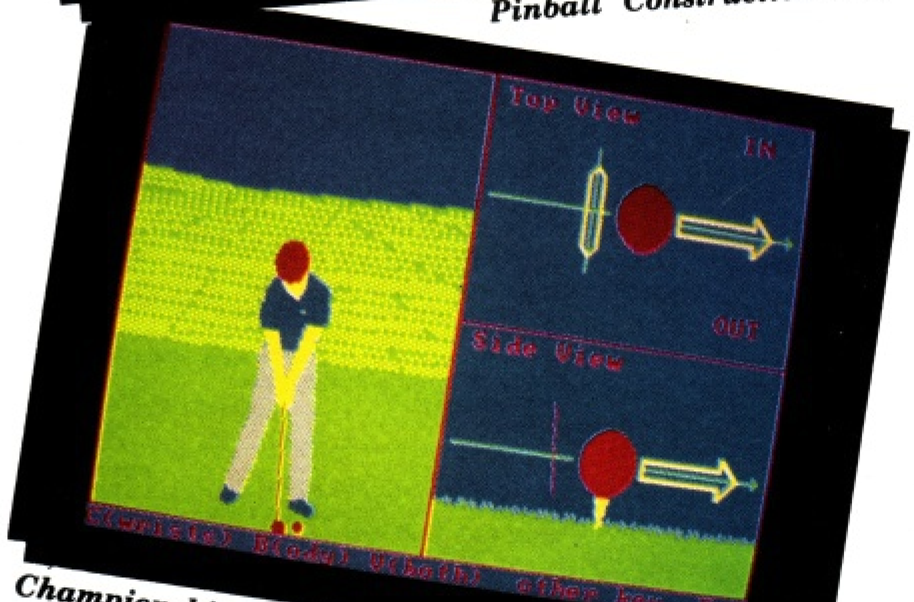
The construction side is quite time consuming, as you've got to try to get



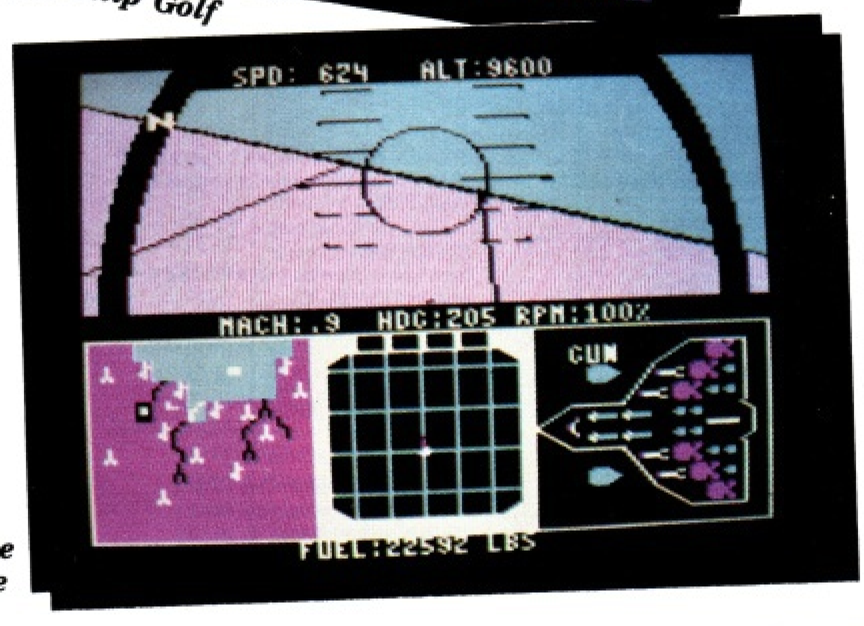
Hacker



Pinball Construction Set



Championship Golf



F15 Strike Eagle

the play balance right and avoid building cul de sacs that trap the ball. This latter is particulary difficult, as the demo games show – I've found several the authors don't seem to have edited out!

Again this is well worth having, as it lends itself to both long term roll-your-own play and short term just-one-more-game-then.

Definitely a blister builder, designed to break your caps shift keys.

The Ed's favourite

The trouble with PCs is that even the arcade games tend to be a bit intellectual.

Boulder Dash and Boulder Dash 2 cast you as a small figure running through caves filled with boulders and diamonds.

If you move beneath a boulder you destroy the purple stuff holding it up and it falls down a notch. Destroy the stuff at the side and it will topple sideways, generally on your head.

This may not seem very promising, and if you topple boulders at the wrong time, in the wrong direction, you can trap yourself by blocking exits.

Besides this you face various unpleasant objects that you do have to trap, or that you can despatch with a carefully aimed boulder.

Boulder Dash 1 is the easiest to get to grips with, starting off with a relatively safe series of screens and a fair number of diamonds to collect.

Once you're through that it gets hairier, with various unpleasant objects starting to put in appearances, but I found myself running out of time rather than losing all my lives.

Boulder Dash 2 is a different kettle of fish, starting off with you boxed in with a large quantity of boulders and something unpleasant – butterfly, firefly, it's not altogether clear – between you and the jewels.

There are plenty of screens to both games and although they're a little quaint when compared to products of fevered imaginations that fill the arcades these days they're eminently playable.

You can be arrested for it . . .

Activision's Hacker is that rare thing – a completely original computer game.

It's difficult to explain it without giving away too much of the plot but the basic storyline is that you are a computer hacker who has accidentally penetrated the security codes of a mysterious – and increasingly sinister – computer.

There are no instructions, just the words 'Log-on please:' on the opening screen.

The author has taken a few liberties with reality – I've never managed to get colour graphics that good down a modem – but it's a highly entertaining game.

The simulation aspect degenerates fairly swiftly into Man from Uncle hokum, but I suspect that's the sort of thing many hackers dream of . . .

Buying them

As the number of Amstrads out there grows the stores are going to start realising they can sell software for them, but don't hold your breath.

London-based readers can obtain a good stock of PC software from Pilot Software, Rathbone Place, W1, 01-636 2666. Pilot will also order product and will supply by mail on request.

Note that the software reviewed here all runs on the Amstrad 1512. The screen shots were taken on an Olivetti M24, but should give an idea of how they'll look on your Amstrad PC.

ACU



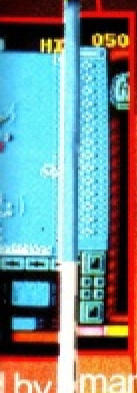
ARCAD
Nichibutsu
Nichibutsu
Nichibutsu
MAGMAX
GOLDEN
COIN-OP
HotShot
Take control of Mag Max and search the planet for the component parts; As the assembly takes place his power and defences will increase. You will also discover special craters which will transport Max to the underground levels where more dangers lurk.
Armaments consist of Super-Laser with which you must eliminate all aliens and their structures. Defeat or be defeated.
Mag Max — robo-centurian.
GOLDEN
COIN-OP
HotShot
inhabited by
Alien Lifefor
impossible w
Pyramids sc
the complex
Imagine
...the name of the game
AMSTRAD £8·95
Imagine Software (1984) Limited • 6 Central Street • Manchester M2 5NS • Tel:

OF MAGIC





Nichibutsu



Galvan the sole surviving member of the Cosmo Police, your imperative assignment is to eliminate all adversaries in the underground Techno Caverns of the planet Cynep. They are d by many Androids, Robots and efor ms; your task would seem le were it not for the Power s scattered at random through olex labyrinth.

Officially licensed coin-op game from Nichibutsu.
Follow up to Moon Cresta. Now for your home computer.



Pilot your space fighter over the planet eliminating all alien life forms on its surface. Build up fire power on board as you dodge missiles launched from land silos and under-sea bunkers. Face the giant Death Star at the end of each orbit. You will need nerves of steel to pass this test.



GOLDEN COIN-OP HotShot

COMMODORE 64 £8·95 SPECTRUM £7·95

Tel: 0 61 834 3939 • Telex: 669977



Psst... wanna cheap phone call?

Many modem users will have heard of PSS, the BT service for computer and modem owners but what good can it do for the average Amstrad computer and modem owner? Steve Gold investigates and eases the load on his wallet too . . .

The size of the telephone bill flopping on to the doormat can come as something of a shock for many first-time modem owners. Calling up all those exotic bulletin boards, even during off-peak periods, can become expensive when rolled up into a big fat bill at the end of the quarter.

But there is an alternative to pawning your modem to pay the phone bill – Packet Switch Stream.

In an ideal world modem users could buy or rent a private circuit between their house and favourite bulletin board and, for a fixed fee, could log-on to the system as often as they chose.

In reality of course we all like to try out new systems – expand our modem horizons – and dial up new and exciting on-line services via the standard telephone network. Obviously these new systems cannot afford to install a complete nationwide grid of local access nodes, due to the high cost involved.

The answer for them – as well as the average modem user – is Packet Switch Stream.

Little packets everywhere

Packet Switch Stream (PSS) is very similar to the telephone network. But it is constructed exclusively so that one computer may talk to another using a data circuit.

The important factor is that, unlike the telephone network as we know it, PSS does not charge on the basis of distance called, but on data transmitted.

Thus a modem user in, say, Plymouth can dial up his local PSS node and call a computer located in Edinburgh, paying the same PSS rates as if the computer were located a few miles away.

In practice the cost of a datacall between any two sites in the UK is around 2 pence a minute. To this must be added the cost of a (usually) local telephone call to a PSS node.

This is slightly higher than for a purely local telephone call, but compares very favourably with the cost of a long distance call – particularly during office hours.

Large scale users of PSS can elect to have their computers linked directly into the PSS network using a private wire. For the majority of users however, PSS means a local call to a PSS node, entering an ID and calling an address anywhere in the UK, or even abroad, for just a few pence a minute.

Thus there are two distinct options open to modem users wishing to dial into a major computer system – dial direct or use PSS.

Local calls = small telephone bills

If you are fortunate enough to be within local calling distance of the on-line system you wish to call PSS will work out slightly more expensive than if a direct modem-to-modem call were effected.

If on the other hand you live outside the local call area for a particular service – such as the London access ports for MicroLink – then you will find PSS a cheaper alternative to dialling direct.

Unlike most popular bulletin boards, PSS dial-up is currently available at several speeds, including 300/300, 1200/75, and 1200/1200 baud. Which speed you use to access PSS will largely be governed by the fastest speed at which your modem operates.

In the future (hopefully early next year), PSS will be increasing its maximum speed to 2400 baud, taking advantage of the improvements now being made to the telephone network in many parts of the country.

As digital exchanges become more common, so such relatively high speeds will become more reliable – and less subject to line noise – than at present.

For the time being 1200 baud is the fastest reliable speed over the telephone network. This is particularly true for trunk circuits in many parts of the country.

As with a standard telephone, PSS charges a rental for a number on the system – currently £6.25 a quarter, plus pay-as-you-go charges based on the length of time the PSS node is in use and the amount of data transmitted.

Some on-line service providers like MicroLink and Telecom Gold provide a general PSS ID to allow their customers to log-on to their system via PSS, charging the PSS bill to their accounts. The use of a service provider's PSS ID obviates the need for a personal PSS ID and is available to all subscribers on a pay-as-you-go basis.

Going International

International PSS (IPSS) involves slightly higher charges of up to 10 pence a minute plus up to 5 pence a kilobyte of data transmitted. IPSS charges are substantially lower than the cost of dialling a country direct via the telephone network.

What's available via PSS?

As with any competitive service, just because an on-line service is available on the standard telephone network doesn't mean to say that it will be available on PSS or IPSS.

In fact most major on-line services such as Prestel, MicroLink, One to One and Easylink, are available on PSS and direct dial.

Most non-London subscribers to electronic mail services other than Prestel will find that PSS is substantially cheaper to use than dialling direct – this is particularly true during office hours, when telephone charges are at their peak.

Sadly, because most BBSs are single-user voluntary affairs, they are not connected to PSS, and so the service tends to concentrate on the major multi-user on-line services such as Telecom Gold and MUD.

Mud glorious Mud

Mud? That's right. Both Mud 1 and Mud II, the on-line (M)ulti (U)ser (D)ungeon games, are available via PSS, as well as direct dial.

The advantage of PSS over direct dial for multi-user services such as these is the number of ports available to users at any given time.

This is because it is substantially cheaper for an on-line host to install an extra PSS address than it it is to install a cluster of telephone lines, disregarding the cost benefits open to subscribers by using PSS.

PSS has a growing number of services hooked up to its network in the UK. Some hosts range from the purely academic, and therefore private, such as universities and colleges, right through the whole spectrum to commercial enterprises for which users pay a small subscription plus a pay as you go per minute charge.

A prime example of the latter is Mud II, the multi-user game owned by British Telecom. In order to entice non-London players to its multi-user dungeon adventure, BT has linked the Mud II system into the PSS network. The majority of players now access the service via PSS, forsaking the relatively expensive (for non-London owners) direct dial ports.

On the international side of things, the financial savings of using IPSS really begin to show through. A typical off-peak direct dial telephone call to the United States from the UK costs upwards of 60 pence a minute.

A comparable IPSS call to the States, however, costs just 7.5 pence a minute plus approximately 5 pence per kilobyte of data transmitted. Keeping speeds down to a (relatively by IPSS standards) pedestrian 1200 baud, a typical datacall to the United States can work out at around £10 an hour. Compare that with the cost of a voice call!

Having had a wide modem user base since the late 1970s, America boasts several on-line services which charge for access on a pay as you play basis. Foremost among these is CompuServe, closely followed by a host of other on-line services such as The Source, American Peoplelink and so on.

In essence these on-line services are really giant multi-user bulletin boards, accessible via local data networks from most countries of the world, for substantially less than an international or national direct dialled call.

Meanwhile back in the UK

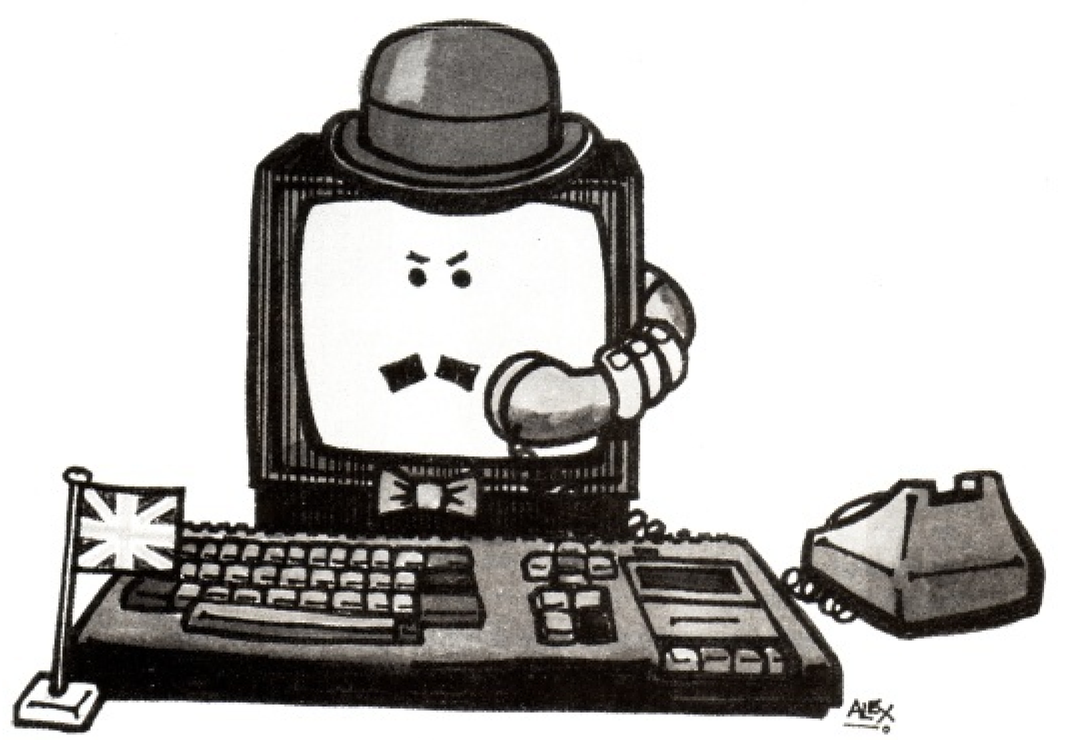
For the less ambitious PSS users, calls within the UK are the norm, with the on-line rate working out at a shade under £3 an hour even for datacalls made during peak rate periods.

Thus, using PSS, it becomes a very real possibility for roving computer enthusiasts to log-on to favourite services via PSS from wherever in the UK they choose.

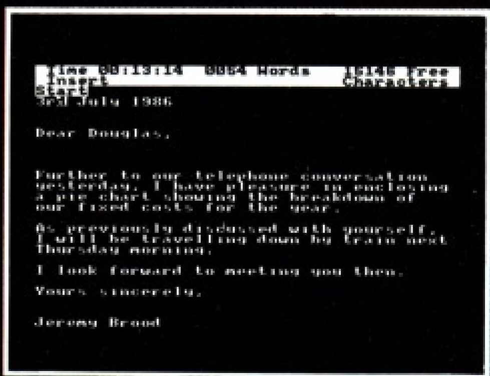
Prestel is accessible from much of the UK for the price of a local telephone call. Since Prestel uses its own network, it employs technology very similar to that employed by the PSS network, and is also accessible via a special PSS address.

Just as we Brits can access top US databases via IPSS, so MicroLink and Prestel have several hundred users dotted around the world who call the UK through IPSS – which just goes to prove that, thanks to PSS and IPSS, the global village is just around the corner.

ACU



All this in just



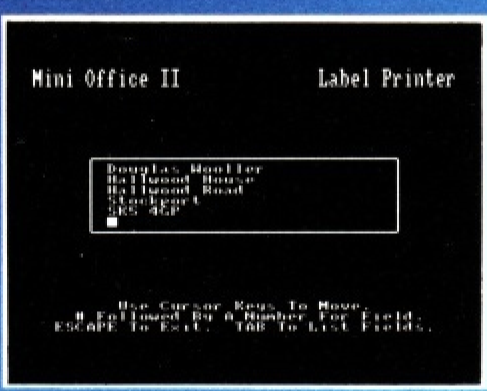
WORD PROCESSOR

Compose a letter, set the print-out options using embedded commands or menus, use the mail merge facility to produce personalised circulars – and more!



DATABASE

Build up a versatile card index, use the flexible print out routine, do powerful multi-field sorting, perform all arithmetic functions, link with the word processor – and more!



LABEL PRINTER

Design the layout of a label with the easy-to-use editor, select label size and sheet format, read in database files, print out in any quantity – and more!



...and at a price

Mini Office II offers the most comprehensive, integrated suite of programs ever written for the Amstrad – making it the most useful productivity tool yet devised.

A team of leading software authors were brought together to devote a total of 26 man years of programming to the development of Mini Office II. What they have produced is a package that sets new standards in home and business software.

The sample screenshots above illustrate just a few of the very wide range of features, many of which are usually restricted to software costing hundreds of pounds. Most are accessed by using cursor keys to move up and down a list of options and pressing Enter to select.

Is it that easy to use? Several leading reviewers have already sung its praises on this very point.

Yet possibly the best advertisement for Mini Office II is that it comes from the same stable that produced the original Mini Office package back in 1984.

That was so successful it was shortlisted in two major categories of the British Microcomputing Awards – the Oscars of the industry – and sold in excess of 100,000 units!

It was up to Mini Office II to take over where the first Mini Office left off, with 32 extra features, two additional modules, a program to convert existing Mini Office files to Mini Office II format, and a 60 page, very easy to follow manual.

This is the package thousands of Amstrad owners have been waiting for – and at a price everyone can afford!

COMPLETE
PRESTEL LINK
FOR YOUR AMSTRAD

Special Offer for Limited Period Only



Complete Pack from £29.99

- ★ Complete package consists of Modem, Interface, Software and connection lead.
- ★ Fully compatible with the CPC464, CPC664 and CPC6128.
- ★ Supports all Prestel features and can also be used with BT GOLD.
- ★ Interface can be used alone to drive printers and plotters.
- ★ Use Prestel's free password for limited access to Prestel database. ID 4444444444. Password 4444.

APPROVED for use
with telecommunications systems
run by British Telecommunications
in accordance with the conditions
in the instructions for use

B.T. Approval No. S/2644/3/E/022886

THE MODEM

British designed Acoustic Modem, flexible coupling fits all standard and Herald telephones.

More reliable in operation than some direct connect Modems.

1200/75 baud operation allows access to PRESTEL, MICRONET, BT GOLD, etc.

Supplied with connection details and user manual.

Modem signals are RS232 compatible, allowing use with other computers and terminals.

Earpiece allows call monitoring.

Battery power, and LED battery state monitor for trouble free portable operation. Batteries (4xAA cells) give 40 hours of operation (not included).

THE INTERFACE

Plugs into Expansion Port, through Bus Connector for other peripherals.
Can be used to interface to other RS232 devices, such as Modems, Plotters and Printers.
Baud rates supported 75/1200, 1200/1200 and 300/300*.
INPUTS:- Data, one handshake – RS232 compatible.
OUTPUTS:- Data, one handshake – +5 volt positive going Works with all TTL level inputs and most RS232 devices.

Supplied with full RSX drivers, which may be used in your own programs.
Not directly compatible with Amstrad CPM. Extensive documentation for the interface and RSX's supplied.

*Cannot be used with Modem.

LINK SOFTWARE

Two versions of the software are available.

The basic version provides full Prestel support including up to 16 colours and dynamic frames.
Prestel frames can be saved to disc or tape.
Terminal emulation mode is also available giving access to BT Gold and similar services.

The enhanced software in addition to the above, offers TELESOFTWARE downloading, user definable function keys and text dump to printer in Prestel Mode.

In terminal mode the software supports ASCII and XMODEM file transfers.
Incoming text may be spooled to file or printer.

ORDER FORM

Please send me .... Amstrad Prestel Link(s) with basic software on tape at £29.99 which includes VAT and P&P. (Usual price £35.00).

Please send me .... Amstrad Prestel Link(s) with basic software on disc at £36.90 which includes VAT and P&P. (Usual price £43.99).

Please send me .... Amstrad Prestel Link(s) with both the basic and enhanced software on disc at £46.95 which includes VAT and P&P. (Usual price £63.32).

Please send me .... Enhanced Software on Disc at £19.95 which includes VAT and P&P.
Please allow 28 days for delivery.

I enclose my cheque for £.............................. made payable to Cirkit Distribution Ltd.
Please debit my Access/Barclaycard (delete as necessary).

☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

NAME ....

ADDRESS ....

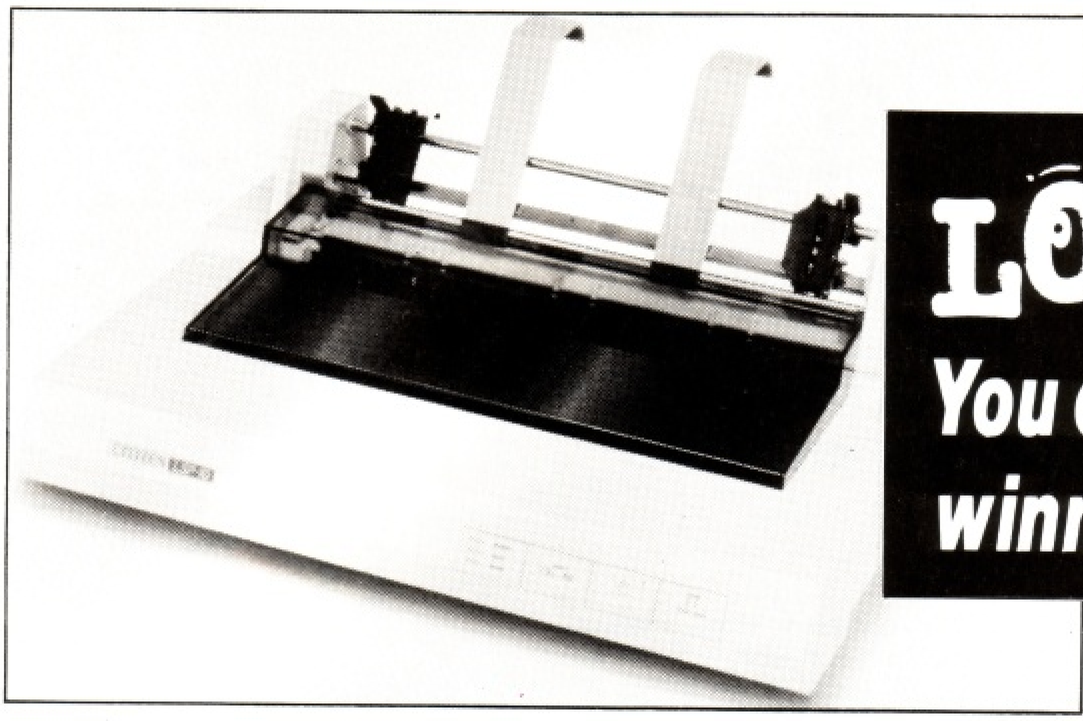
....

POSTCODE .... DATE ....

SIGNATURE ....

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Park Lane, Broxbourne, Herts EN10 7NQ
Telephone (0992) 444111, Telex 22478

Cirkit



LOOK OUT!

You could end up winning this printer!

Are you eagle-eyed? Prove it by spotting the ten differences in the two pictures below and you could win the LSP10 printer from Citizen.

You won't be able to tell the time on this Citizen, but you will be able to get high quality text and graphic printouts quickly and quietly.

If you'd like one to adorn the office or study, get out those specs or test that 20/20 vision you pride yourself on, by marking the differences between pictures A and B, you could stand to win the machine itself.

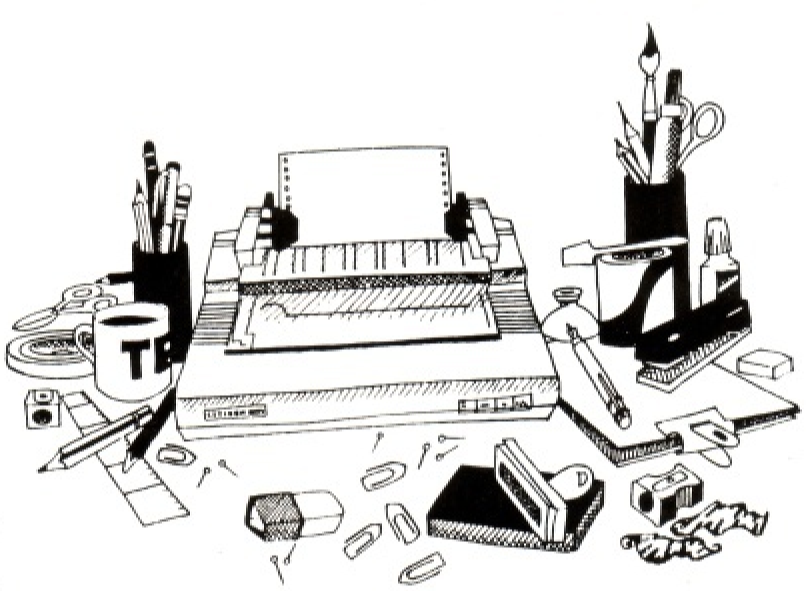
RULES:

1. Sender of the first correct entry drawn on January 20 will win the Citizen LSP10 printer and two ribbons.
2. You may photocopy the form but only one entry is allowed per reader.
3. The judges decision is final. No employees of ACU may enter.

PICTURE A



PICTURE B



Citizen contest entry form

Name ....

Address ....

....

....

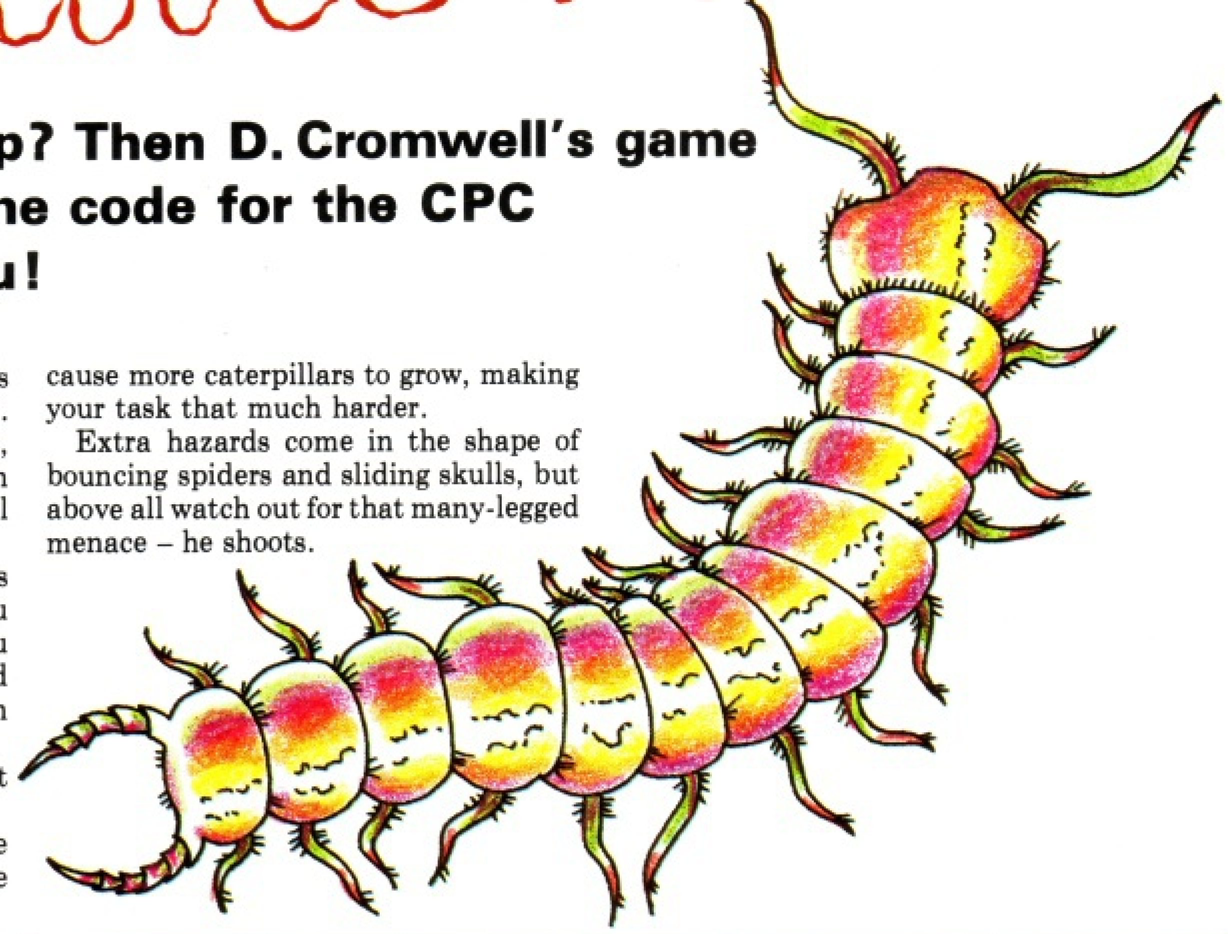
....

....

Mark the differences on B and send to: Citizen Contest ACU, 169 Kings Rd, Brentwood, Essex CM14 4EF.

Crawler

Are you a real creep? Then D. Cromwell's game in Basic and machine code for the CPC range is just for you!



How does your garden grow? This one is full of mushrooms, spiders and skulls. You are being attacked by a caterpillar, but fortunately you are armed with strong spines, and can, with some careful aiming, shoot back.

Killing caterpillars is not as simple as treading on ants, particularly when you are only a little insect yourself. If you shoot the creepy crawler in the head you'll kill it. Mere flesh wounds result in the loss of a body segment.

The longer the caterpillar the harder it is to kill.

Magic mushrooms sprout over the grave of an ex-caterpillar,and later these cause more caterpillars to grow, making your task that much harder.

Extra hazards come in the shape of bouncing spiders and sliding skulls, but above all watch out for that many-legged menace – he shoots.

```
10 REM ========================
20 REM ====== CRAWLER ==========
30 REM === by D. Cromwell ======
40 REM == all REMS removeable ==
50 REM ========================
```

```
100 CLEAR:GOTO 2050
110 REM ----- shot ----
120 IF sy>366 THEN sh=0:GOTO 170
130 ON TEST(sx,sy+10)+1 GOTO 140,180,160
    ,160
140 sy=sy+16:MOVE sx,sy:DRAWR 0,le,3
145 IF le=-14 THEN le=-16:RETURN
150 DRAWR 0,-14,0:RETURN
160 IF le=-14 THEN sh=0:RETURN
170 sh=0:MOVE sx,sy:DRAWR 0,-14,0:RETURN
180 SOUND 4,200,20,13,1,2
190 LOCATE (sx+10)/16,(398-sy)/16
200 IF le=-16 THEN GOSUB 170
205 PEN 2:CALL 25400
210 ON PEEK(25395) GOTO 220,230,250,240
220 fl=1:cr=6:RETURN
230 in=75:GOTO 260
240 POKE 25590,1:sd=0:in=300:GOTO 260
250 cr=7:in=500
260 IF sc+in>exl THEN 300
270 sc=sc+in:LOCATE 20,1:PEN 1
280 PRINT USING"######";sc;
290 RETURN
300 exl=exl+10000:liv=liv+1
310 PEN 3:LOCATE 30+liv,1
320 PRINT CHR$(139);:GOTO 270
```

```
330 REM ------ cr 1 -----
340 PEN 1:CALL 25000
350 SOUND 2,500,5,9
360 IF PEEK(24951)=24 AND dr=0 THEN 390
370 ON PEEK(24995)+1 GOTO 380,420,440
380 FOR j=1 TO 6:NEXT:RETURN
390 dr=1:k=SGN(p-PEEK(24952))
400 POKE 24950,(k+256) MOD 256
410 RETURN
420 sh=0:SOUND 4,200,20,13,1,2
430 PEN 2:CALL 25453:GOTO 250
440 sd=0:RETURN
```

```
450 REM ------- cr 4/5 -------
460 LOCATE bc,br:PEN bcl:PRINT CHR$(bcl*
    4+126);
470 IF bc+off=org THEN cr=6:RETURN
480 IF bc=41-org THEN off=-off:dx=-dx
490 SOUND 2,540,5,9
500 bc=bc+off:bx=bx+dx
510 bcl=TEST(bx,by):IF bcl<>TEST(bx-2,by
    ) THEN 542
515 cr=5:LOCATE bc,br
520 PEN 1:PRINT sk$;:RETURN
530 cr=4:SOUND 2,400,5,9
540 FOR j=1 TO 25:NEXT:RETURN
542 SOUND 4,200,20,13,1,2
543 GOSUB 170:CALL 25518
545 fl=1:cr=6:RETURN
```

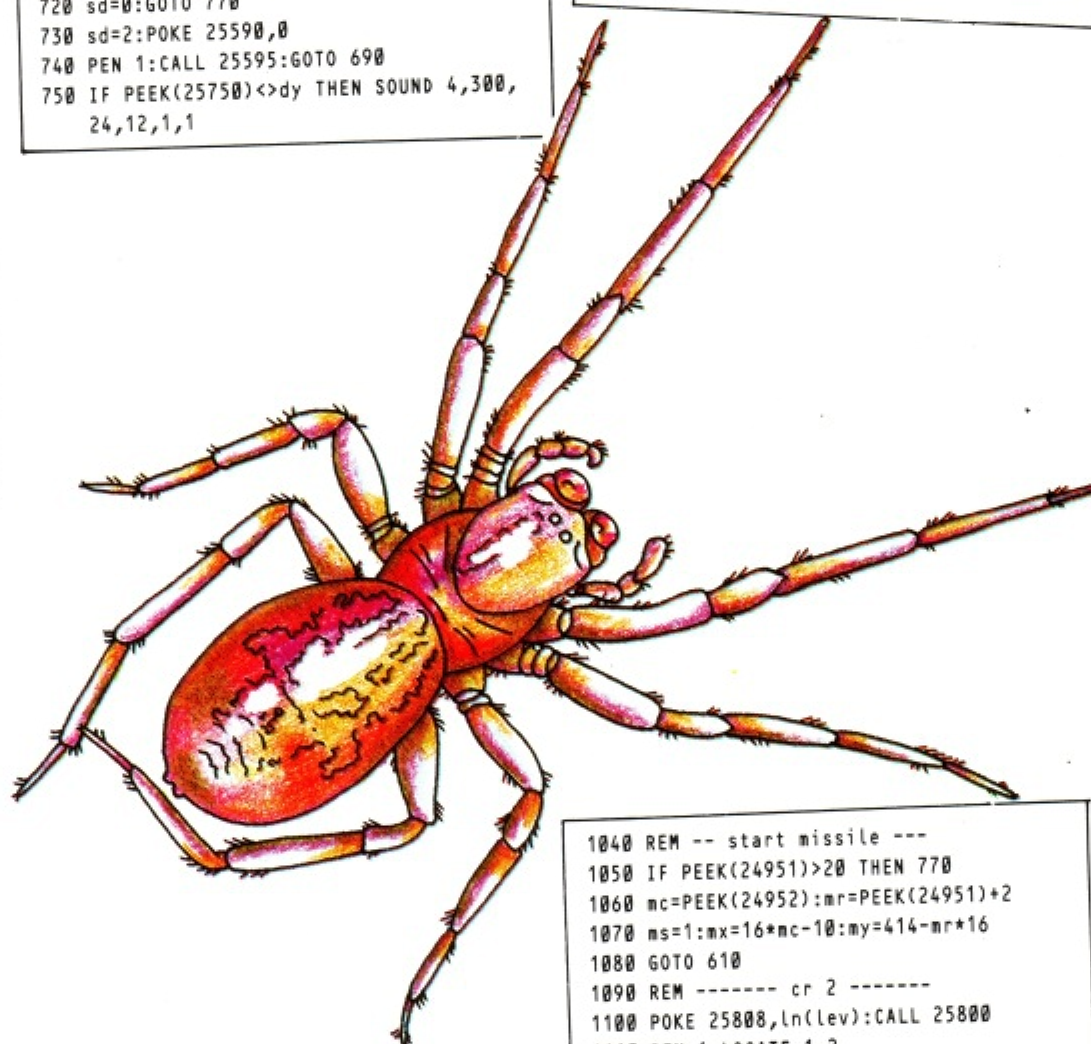
```
550 REM ----- missile ------
560 LOCATE mc,mr:PEN mcl:PRINT CHR$(mcl*
    4+126);
570 IF my=14 THEN ms=0:GOTO 770
580 my=my-16:mr=mr+1:adj=0
590 IF mr<ma(lev) THEN adj=SGN(p-mc)
600 mc=mc+adj:mx=mx+adj*16
610 mcl=TEST(mx,my-6)
620 IF mcl<>TEST(mx+2,my-12) THEN sh=0:m
    cl=0
630 MOVE mx,my:DRAWR 0,-14,2
640 GOTO 770
```

```
670 REM ----- spider --------
680 dy=PEEK(25750):CALL 25600
690 ON PEEK(25590)+1 GOTO 750,720,700,72
    0
700 GOSUB 170:in=300:GOSUB 260
710 SOUND 4,200,20,13,1,2
720 sd=0:GOTO 770
730 sd=2:POKE 25590,0
740 PEN 1:CALL 25595:GOTO 690
750 IF PEEK(25750)<>dy THEN SOUND 4,300,
    24,12,1,1
```

```
760 REM --- main routine ----
770 IF INKEY(67)<>-1 AND p>1 THEN p=p-1:
    POKE 25349,PEEK(25349)-2
780 IF INKEY(59)<>-1 AND p<40 THEN p=p+1
    :POKE 25349,PEEK(25349)+2
790 CALL 25300
800 IF PEEK(25295)=255 THEN 1410
810 ON sh+1 GOSUB 1360,120
820 ON cr GOSUB 340,1100,1160,460,530,12
    30,1280
830 ON sh+1 GOSUB 1390,120
840 ON lev GOTO 940,890,890,920,920
850 IF ms=1 THEN 560
860 ON sd GOTO 730,680
870 IF cr=1 AND ABS(p-PEEK(24952))<5 THE
    N 1050
```

```
880 GOTO 930
890 IF ms=1 THEN 560
900 IF cr=1 AND ABS(p-PEEK(24952))<5 THE
    N 1050
910 GOTO 940
920 ON sd GOTO 730,680
930 IF RND<pb THEN 950
940 FOR j=1 TO 20:NEXT:GOTO 770
```

```
950 REM ---- start spider ----
960 sd=1:k=CINT(RND*3)+21
970 dy=1:IF k>22 THEN dy=255
980 POKE 25748,k:POKE 25750,dy
990 k=(-1)↑CINT(RND)
1000 IF k*PEEK(24952)<-20 OR k*PEEK(2495
     2)<20 THEN k=-k
1010 POKE 25749,20-19*k
1020 POKE 25751,(k+256) MOD 256
1030 GOTO 770
```



```
1040 REM -- start missile ---
1050 IF PEEK(24951)>20 THEN 770
1060 mc=PEEK(24952):mr=PEEK(24951)+2
1070 ms=1:mx=16*mc-10:my=414-mr*16
1080 GOTO 610
1090 REM ------- cr 2 -------
1100 POKE 25808,ln(lev):CALL 25800
1110 PEN 1:LOCATE 1,2
1120 PRINT STRING$(ln(lev)/2-1,132)+CHR$
     (129);
1130 pb=0.25:IF lev>5 THEN pb=0.07
1140 dr=0:cr=1:RETURN
1150 REM ------- cr 3 -------
1160 IF ms=1 THEN RETURN
1170 pb=0.25:fl=0
1180 off=(-1)↑CINT(RND):br=INT(RND*13)+4
1190 bc=20.5-19.5*off:org=bc
1200 bx=bc*16-8:by=408-br*16
1210 dx=off*16:cr=4:GOTO 510
1220 REM ------- cr 6 -------
1230 FOR j=1 TO 16:NEXT
1240 IF fl=0 THEN fl=1:GOTO 1180
1250 IF sd=0 THEN cr=2
1260 RETURN
```



```
1270 REM ------- cr 7 -------
1280 IF ms=1 OR sd=2 THEN 540
1290 IF sh=1 AND sy>366 THEN sh=0:GOSUB 170
1300 PEN 3:ch=138:cr=2
1310 FOR j=1 TO 3:GOSUB 2480:NEXT
1320 IF lev<10 THEN lev=lev+1
1330 ht=ht+1:IF ht=3 THEN ht=0:cr=3
1340 RETURN
```

```
1350 REM - fire start/delay -
1360 IF INKEY(47)=-1 THEN 1390
1370 sh=1:sx=p*16-10:sy=30:le=-14
1380 SOUND 1,300,20,13,1,,15:RETURN
1390 FOR j=1 TO 10:NEXT:RETURN
```

```
1400 REM ------- death ------
1410 SOUND 3,300,75,12,,2
1420 FOR j=2 TO 9
1430 IF p+j>41 THEN 1480
1440 PEN 2:LOCATE p+j-2,24
1450 IF p+j=41 THEN PRINT" ";:GOTO 1480
1460 PRINT " )";:PEN 3:PRINT">";
1470 IF p-j<0 THEN 1510
1480 IF p-j=0 THEN LOCATE 1,24:PRINT" ";:GOTO 1510
1490 PEN 3:LOCATE p-j,24
1500 PRINT "<";:PEN 2:PRINT"( ";
1510 FOR k=1 TO 20:NEXT k,j
1520 LOCATE 1,24:PRINT CHR$(18);
1530 IF sd=2 THEN CALL 25509
1540 IF le*sh=-16 THEN GOSUB 170
1550 IF ms=0 OR mr=24 THEN 1580
1560 LOCATE mc,mr:PEN mcl
1570 PRINT CHR$(mcl*4+126);
1580 ON cr GOTO 1590,1640,1640,1620,1620,1640,1610
1590 POKE 25460,32:CALL 25453
1600 POKE 25460,134:GOTO 1640
1610 GOSUB 1300:GOTO 1650
1620 LOCATE bc,br:PEN bcl
1630 PRINT CHR$(bcl*4+126);
1640 cr=2
1650 IF liv=0 THEN 1690
1660 LOCATE 30+liv,1:PRINT " ";
1670 liv=liv-1:GOTO 2440
```

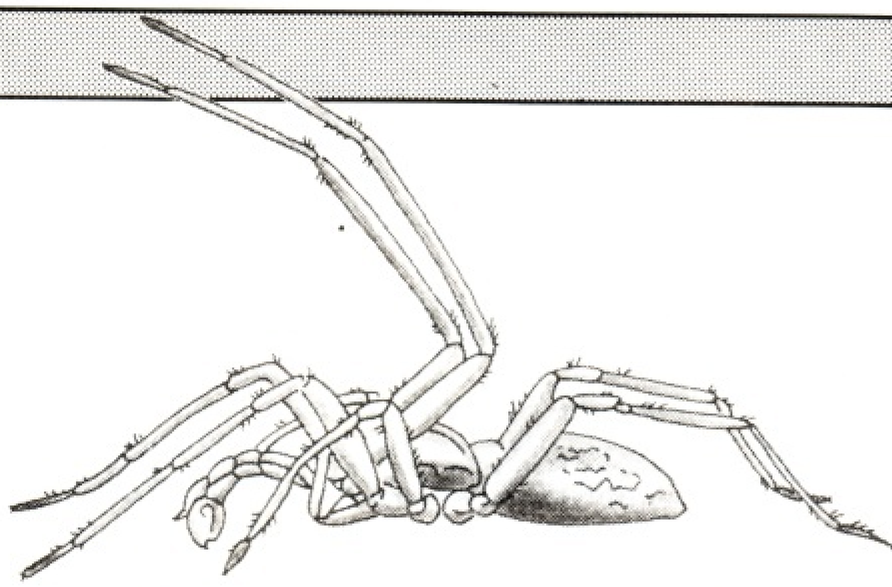
```
1680 REM ----- game over ----
1690 PEN 1:LOCATE 16,8
1700 PRINT"GAME OVER";
1710 SOUND 3,480,280,10,0,1
1720 FOR k=1 TO 2800:NEXT
1730 MODE 0:FOR j=1 TO 10
1740 IF hs(j)<=sc THEN 1760
1750 NEXT:GOTO 1930
1760 FOR k=10 TO (j+1) STEP -1
1770 hs(k)=hs(k-1):hs$(k)=hs$(k-1)
1780 NEXT:hs(j)=sc
1790 PEN 4:LOCATE 4,5
```

```
1800 PRINT"With a score of"
1810 PEN 3:PRINT:PRINT TAB(8) sc
1820 PRINT:PEN 4
1830 PRINT"    you have the"
1840 IF j=1 THEN 1870
1850 pl$="th":IF j=2 THEN pl$="nd" ELSE IF j=3 THEN pl$="rd"
1860 PRINT TAB(8) STR$(j)+pl$
1870 PRINT"   highest score!"
1880 WHILE INKEY$<>"":WEND
1890 PEN 1:LOCATE 3,17
1900 PRINT"Please enter name"
1910 PEN 3:LOCATE 8,19:INPUT "",hs$(j)
1920 IF LEN(hs$(j))>9 THEN hs$(j)=LEFT$(hs$(j),9)
1930 CLS:PEN 3:PRINT"     High Scores"
1940 MOVE 160,382:DRAWR 350,0,4
1950 MOVE 164,378:DRAWR 342,0
1960 PEN 1:FOR j=1 TO 10
1970 LOCATE 3,j*2+2:PRINT hs$(j);
1980 PRINT STRING$(17-LEN(hs$(j)+STR$(hs(j))),46);
1990 PRINT hs(j):NEXT
2000 PEN 2:PRINT"    Press any key"
2010 WHILE INKEY$<>"":WEND
2020 CALL &BB18:REM === wait key ===
2030 GOTO 2350
```

```
2040 REM ---- title page ----
2050 GOSUB 2520:CLS:INK 2,18
2060 PEN 2:PRINT TAB(17)"CRAWLER"
2070 MOVE 256,382:DRAWR 110,0,3
2080 MOVE 260,378:DRAWR 102,0
2090 PEN 1:WINDOW 3,38,4,25
2100 PRINT"  Blast the evil  centipede as  it"
2110 PRINT"advances through the indestructible"
2120 PRINT"mushrooms. Shooting a body  segment"
2130 PRINT"shortens it, hitting its head kills"
2140 PRINT"it off."
2150 PRINT"  When a centipede meets a poisoned"
2160 PRINT"mushroom, it grows an extra segment.";
2170 PRINT"  The spider & skull also make life"
2180 PRINT"a little harder."
2190 PEN 3:PRINT:PRINT" Controls :";
2200 PEN 2:PRINT TAB(13)"<Q> <W> = left & right"
2210 PRINT TAB(13)"<SPACE> = To fire"
2220 PEN 3:PRINT:PRINT"  Scores  :";
2230 PEN 2:PRINT TAB(13)"Body segment = 75 pts"
2240 PRINT TAB(13)"The head     = 500 pts"
2250 PRINT TAB(13)"Spider       = 300 pts"
2260 PRINT"  The Skull scrolls the screen up"
2270 PEN 1:PRINT
2280 PRINT"  A BONUS life at every 10,000 pts"
2290 PRINT:PRINT"         Press any key to start"
2300 WHILE INKEY$<>"":WEND
2310 CALL &BB18
2320 BORDER 0:INK 0,0:INK 1,18
2330 INK 2,5:INK 3,26:INK 4,6
```

```
2340 REM --- screen set up --
2350 MODE 1:PEN 1
2360 PRINT TAB(12)"Score -      0";
2370 PEN 3:PRINT"      ";STRING$(3,139);
2380 PEN 3:ch=138:FOR j=1 TO 21
2390 GOSUB 2480:NEXT
2400 PEN 2:ch=134:FOR j=1 TO 5
2410 GOSUB 2480:NEXT
2420 exl=9999:sc=0:liv=3
2430 lev=1:cr=2:sh=0:ht=0:dr=0
2440 POKE 25295,0:POKE 25349,86
2450 POKE 25590,1:CALL 25312
2460 p=20:ms=0:sd=0
2470 GOTO 770
2480 x=CINT(RND*39)+1:y=INT(RND*20)+2
2490 LOCATE x,y:PRINT CHR$(ch);
2500 RETURN
```

```
2510 REM -- Initialization --
2520 MODE 1:CALL &BC02
2530 PEN 1:PRINT"Please wait"
2540 SYMBOL AFTER 256:MEMORY 24949
2550 SYMBOL AFTER 129
2560 SYMBOL 129,120,132,226,255,225,240,126,0
```



```
2570 SYMBOL 130,126,219,153,153,126,60,9
     0,0
2580 SYMBOL 131,30,33,71,255,135,15,126,
     0
2590 SYMBOL 132,60,126,255,255,255,255,1
     26,60
2600 SYMBOL 133,126,255,153,255,102,60,6
     6,60
2610 SYMBOL 134,0,126,255,255,0,60,60,60
2620 SYMBOL 135,66,55,143,119,15,115,132
     ,2
2630 SYMBOL 136,132,216,226,220,224,156,
     66,128
2640 SYMBOL 137,16,16,16,16,16,16,16,16
2650 SYMBOL 138,0,0,126,255,255,0,60,60
2660 SYMBOL 139,8,62,127,127,62,93,62,73
2670 RESTORE 2880
2680 k=0:FOR j=25000 TO 25243:READ a:k=k
     +a:POKE j,a:NEXT
2690 IF k<>27918 THEN GOSUB 2840:STOP
2700 k=0:FOR j=25300 TO 25368:READ a:k=k
     +a:POKE j,a:NEXT
2710 IF k<>6962 THEN GOSUB 2840:STOP
2720 k=0:FOR j=25400 TO 25573:READ a:k=k
     +a:POKE j,a:NEXT
2730 IF k<>20389 THEN GOSUB 2840:STOP
2740 k=0:FOR j=25595 TO 25741:READ a:k=k
     +a:POKE j,a:NEXT
2750 IF k<>18029 THEN GOSUB 2840:STOP
2760 k=0:FOR j=25800 TO 25854:READ a:k=k
     +a:POKE j,a:NEXT
2770 IF k<>3236 THEN GOSUB 2840:STOP
2780 FOR k=1 TO 10:READ a,b
2790 hs(k)=500:hs$(k)="Dave"
2800 ln(k)=a:ma(k)=b:NEXT
2810 ENT 1,140,-3,2:ENT 2,75,20,1
2820 ENV 1,1,0,2,11,-1,2
2830 sk$=CHR$(133):RETURN
2840 PRINT"Error in data lines":RETURN
```

```
2850 REM ===== MACHINE CODE DATA =====
2860 REM   routine : Crawler movement
2870 REM          from 25000 - 25243
2880 DATA 33,148,97,17,150,97,1,30,0,237
     ,184,42,119,97,58,118,97,132
2890 DATA 183,40,49,254,41,40,45,103,205
     ,117,187,62,102,205,249,97,42
2900 DATA 119,97,68,44,205,117,187,62,82
     ,205,249,97,58,118,97,128,205
2910 DATA 111,187,62,96,205,249,97,120,2
     54,40,40,126,254,1,40,122,24
2920 DATA 74,44,205,117,187,62,82,205,24
     9,97,24,63,209,50,5,98,205,96
2930 DATA 187,254,134,40,18,56,96,254,13
     7,40,4,56,21,213,201,62,1,50
2940 DATA 163,97,55,24,238,213,33,145,98
     ,62,149,190,200,52,52,201,205
2950 DATA 39,98,55,24,221,42,148,100,205
     ,117,187,205,141,100,62,2,50
2960 DATA 163,97,201,102,124,58,120,97,3
     3,118,97,150,50,120,97,205,111
2970 DATA 187,205,96,187,254,137,40,194,
     254,135,212,39,98,254,134,32,3
2980 DATA 205,23,98,58,118,97,237,68,50,
     118,97,42,119,97,44,24,14,42
2990 DATA 119,97,44,24,3,42,119,97,58,11
     8,97,132,103,34,119,97,58,122
3000 DATA 97,148,198,130,71,205,117,187,
     120,205,93,187,42,121,97,205
3010 DATA 117,187,62,132,205,93,187,42,1
     33,97,205,117,187,62,32,205,93
3020 DATA 187,201
```

```
3030 REM   routine : Bug test & printout
3040 REM      from  25300 - 25368
3050 DATA 42,7,99,229,205,240,98,225,175
     ,190,32,7,42,5,99,175,190,40
3060 DATA 6,62,255,50,207,98,201,34,7,99
     ,17,9,99,235,6,2,26,174,18
3070 DATA 35,19,16,249,235,1,254,7,9,48,
     239,201,106,199,108,199,17,0
3080 DATA 23,12,31,14,31,14,119,204,187,
     170,119,204,153,34
```

```
3090 REM  routine : hit decode + action
3100 REM    from  25400 - 25573
3110 DATA 205,96,187,254,132,40,12,56,44
     ,254,133,40,105,24,89,118,96
3120 DATA 96,240,33,145,98,62,123,190,40
     ,26,53,53,94,22,97,213,221,225
3130 DATA 221,110,0,221,102,1,205,117,18
     7,62,32,205,93,187,62,2,24,47
3140 DATA 42,119,97,205,117,187,62,134,2
     05,93,187,58,145,98,214,121,203
3150 DATA 63,71,221,33,121,97,197,221,11
     0,0,221,102,1,205,117,187,62
3160 DATA 32,205,93,187,221,35,221,35,19
     3,16,234,62,3,50,51,99,201,62
3170 DATA 4,205,156,99,42,148,100,205,11
     7,187,195,93,100,62,1,205,156
3180 DATA 99,62,32,205,93,187,42,5,99,22
     9,205,240,98,58,246,99,183,204
```



```
3190 DATA 165,99,33,1,0,17,24,39,6,1,175
     ,205,80,188,225,205,240,98,58
3200 DATA 246,99,183,192,62,1,205,144,18
     7,42,148,100,195,55,100
3210 REM  routine : spider movement
3220 REM    from  25595 - 25741
3230 DATA 42,148,100,24,42,42,148,100,22
     9,205,117,187,205,93,100,62,1,205,1
     44
3240 DATA 187,225,124,254,1,40,66,254,39
     ,40,62,125,254,21,56,4,254,25,56,8,
     58
3250 DATA 150,100,237,68,50,150,100,58,1
     51,100,132,103,58,150,100,133
3260 DATA 111,34,148,100,84,36,205,117,1
     87,205,118,100,50,153,100,122
3270 DATA 205,111,187,205,118,100,50,152
     ,100,62,135,205,93,187,62,136
3280 DATA 205,93,187,201,62,1,50,246,99,
     201,58,152,100,205,102,100,58
3290 DATA 153,100,6,3,245,254,138,40,1,5
     ,120,205,144,187,241,195,93
3300 DATA 187,205,96,187,254,32,200,254,
     133,56,5,254,137,40,3,201,62
3310 DATA 138,214,135,50,246,99,225,201
```

```
3320 REM   routine : machine code set up
3330 REM     from  25800 - 25854
3340 DATA 33,118,97,54,1,35,235,62,1,79,
     62,255,145,111,62,119,129,50,145
3350 DATA 98,175,50,163,97,38,100,6,0,23
     7,176,201,2,12,2,11,2,10,2,9
3360 DATA 2,8,2,7,2,6,2,5,2,4,2,3,2,2,2,
     1
3370 REM  level data - not machine code
3380 DATA 14,2,14,2,14,15,16,2,16,2,18,1
     6,18,18,20,20,22,21,24,22
```







Starglider does the CPC proud

John Baker previews Rainbird's latest offering and finds it's a little cracker

Bugs in the system – there's no getting away from them, is there? No program of any size is without those tiny flaws that lurk unseen until the unexpected occurs.

Of course, when the program is simply, say, an alphabetical sort routine, and the consequences of the bug mean that aadvark is always listed after xylophone for some mysterious reason – big deal.

But when the bug exists in the orbital defences of your home planet, you've got problems!

So runs the plot of that ST biggie from Rainbird, Starglider (now on Amstrad CPC). And naturally enough, it's up to you to set things to rights.

What has happened is that the nice peace loving Novenians – Novenia being the Galactic equivalent of Hampstead – have developed some wizzo satellites.

They can spot invaders (in this case the evil Ergons, headed by Fleet Commander Hermann Krudd – boo hiss) and blast them into tiny pieces . . . in fact, they'll blast anything into tiny pieces . . . all except Stargliders, that is.

These birds migrate between planets and being an endangered species, the system has been programmed to ignore bird-shaped things.

So whadda the Ergons do? Make Starglider shaped spaceships! Riiiiiight on!

In they go, surprise attack, all defences destroyed, world domination, racial enslavement – and you're expected to go in and clean up – you and your female side-kick were swanning around on the moon, incidentally, and missed the big shoot out.

All this is explained in an amazingly average novella written by James Follet which accompanies the program tape/disc, along with a meaty instruction booklet.

It may not be a literary masterpiece but is well worth reading for the various tips and hints that are contained within – like how to destroy the Ergons!

Nice scenario then (if a tad implausable) and it was fun on the ST. But how does it convert to the humble but proud CPC?

The conversion

This gargantuan task was given to Realtime Software, largely in the shape of Graeme Baird and Ian Oliver, previously involved with such "vector graphics" releases as Tank Duel, Starstrike and more recently, Starstrike II.

If anyone could do it, argued Rainbird, they could.

"We knew it was going to be very hard", said Ian, "but in the end we did a lot better than we thought we were going to".

They were up against some tricky technical limitations. The ST with its 68000 chip has hardware multiply and divide – ideal for moving line graphics around, and masses of memory.

Not so the 464, especially using the techniques involved in getting the animation of the nasties so smooth.

"We used screen flipping", explained Ian, "that's having two screens in memory and displaying one while drawing the other".

Using a 12k screen, that's 24k taken up before you do a thing!

But the results are good, with a frame rate of around eight or nine per second, slowing down to five when the screen is really crowded.

Slightly slower than the Spectrum version but you should find it fast enough for your tastes. So we come on to the game itself.

The gameplay

What you have is an out of the cockpit 3D perspective display (as in Elite) surrounded by the trappings of a ship's console, including scanners, guages and so on.

You manoeuvre your craft via joystick, keyboard or a combination of the two, attempting to kill and maim the 16 plus different sorts of nasty.

Usually you can do this with your bog-standard laser, but the more robust types (like Starglider One – which you must destroy to proceed through the game's four levels) need a precious missile.

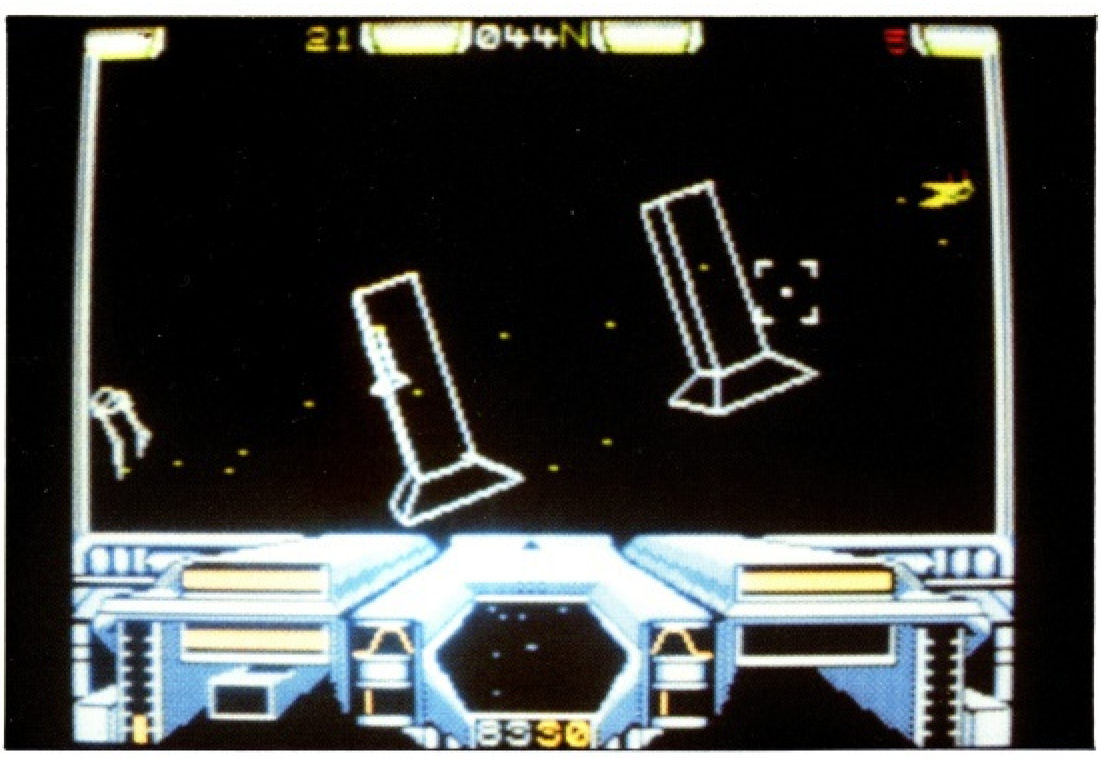
On launching, a separate screen drops down (Realtime is particularly pleasing with this effect) and you get a view from the nose of the projectile as you attempt to guide it on target.

However, you only start off with one missile, can only carry a maximum of two, and getting replacements isn't easy.

It involves docking with a missile silo (which also replenishes your laser and shield energy) and at the same time you can interrogate the silo's computer about your opponents.

They can be displayed on screen, together with a potted biography, but beware – they are not all listed!

As well as worrying about the lack of missiles and the lasers running out of



Energy towers – this is where you top up

power, you also have your fuel status to consider – and if you thought docking with the silos was difficult, try interfacing with the main planetary power grid!

This strikes a good balance between strategy and action. You can play Starglider as a straightforward 3D zapper – and on this level it's one of the very best.

But if you want to get further into it more thought is needed – together with, I suspect, more than a little luck!

Conclusion

ST Starglider knocks your socks off from the first moment you set eyes on it.

15 seconds of sampled soundtrack, animated figures with 20 odd frames, bags of colour, super speed – it's great.

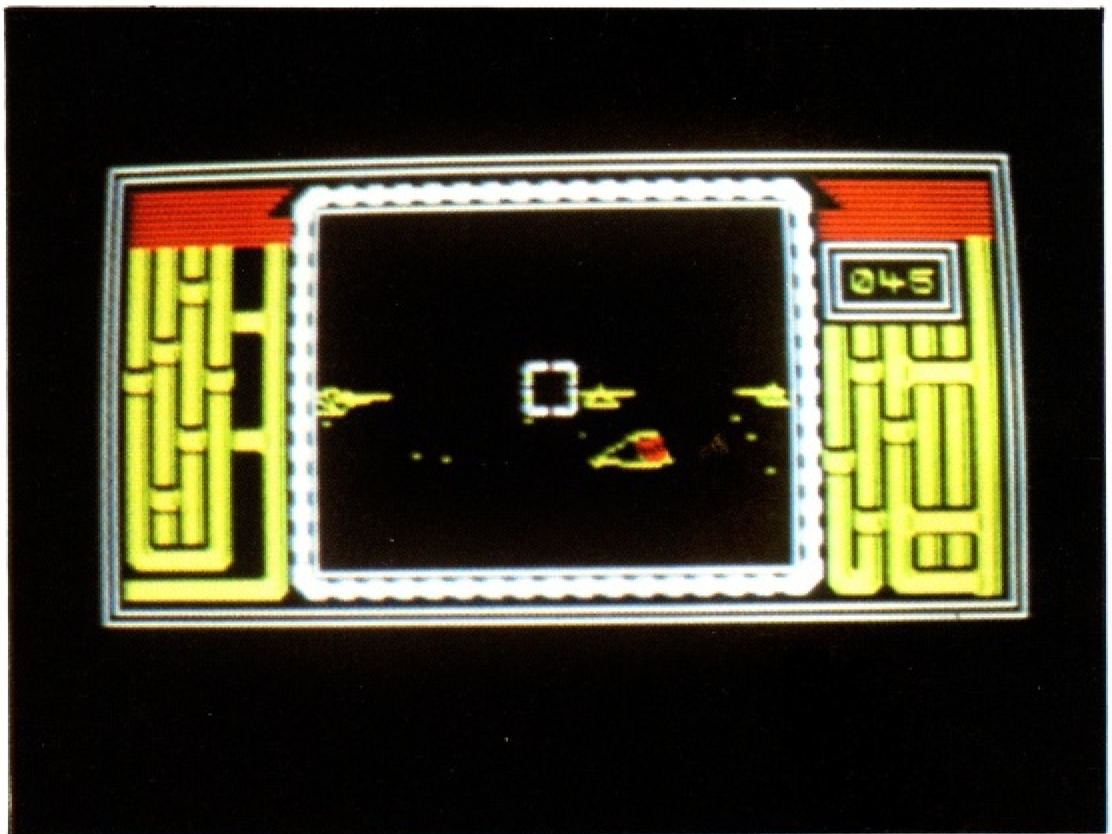
Amstrad Starglider can never hope to be the same, yet Realtime has produced a version that does the CPC proud.

Extras not on the ST include some new enemies, a user-defined pallette (you can choose which three colours are displayed on the playing screen) and multi-coloured nasties.

And – it is hoped in the final days of programming – special missions which on completion will give you extra hardware, such as a rear view scanner.

Coming out of the shadow of its illustrious predecessor, Amstrad Starglider is an excellent game in its own right.

And if you're looking for a little cracker to fill the stocking of your favourite arcade freak, you can be sure they won't be disappointed with this one.



View from the missile's nose

ACU



Prison panic!

Konami no longer sells the home computer rights for its coin-op machine to small software houses. Instead it converts the games in-house. Bill Headly tries the first Amstrad product.

OK, I'll confess. For the larger part of my life I've lived within blagging distance of H M Prison on Dartmoor. And I enjoy the occasional game of They Stole a Million.

These things apparently qualify me to give a closer than usual look at Jail Break, the latest coin-op conversion from Konami. I'd like to say that I've never met Simon "Le Nez" Rockman or seen the Brentwood Millions, and on the night of the 17th I was writing software reviews in the company of PC Clone.

Jail Break is based very closely indeed on the arcade game of the same name. In fact I've never seen anything quite so close to the real thing as this version on the Amstrad.

It's obvious, even if you've never seen the tenpence-guzzling original, that Konami has really pushed the boat out to get the feel just right. The firm's experience in arcade games has clearly paid off.

More on the graphics later, but first over to our newsroom for a major newsflash . . .

There's been big trouble in the city jail. Somehow the inmates have got hold of an awful lot of armaments, and they've run riot.

A mass breakout is just one of your problems; you're the only officer of the law on the scene, and the prison governor's been taken hostage. A message comes over the two way radio: "Rescue him at any cost".

Your mission seems impossible. As you stride down the street towards the jail you see the first of the escapees running towards you. And they're armed with pistols, machine guns and high explosives. All you've got is your standard issue sidearm. You break into a sprint.

The bullets start to fly in earnest. Desperately dodging the slugs, you try and wipe out as many of the jailbirds as you can, all the time trying to get closer to the jail to rescue the governor.

Some prisoners have hidden themselves in spider traps; all you can see is their heads, and those briefly, as they pop up to squeeze shots off at you. You'll need your wits to get past them.

As you progress towards your goal you get the chance to rescue some of the civilian hostages that have fallen foul of the felons.

Success here brings tangible help, as for each hostage you rescue you get some more, heavier, artillery. The first captive you free gets you a bazooka, for example.

You'll need these bits of hardware later as there are more obstacles ahead. The first of these is the line-up of convicts that bar your exit from the street. With that sort of firepower, it's not going to be easy . . .



The next stage is Battery Park. Once a haunt for lovers, it's now in the hands of desperate men. In the bushes, behind trees, by the paths, lurk the convicts.

It's getting more difficult, as the hail of lead gets thicker and faster, just to stay alive. But you have to get through; if they kill the governor they'll stop at nothing.

Escape from the frying pan of the park, and you're into the firepower of the docks. It's occurred to some of the prisoners to make good their escape by sea, and they're not landing without a fight.

The trouble with docklands is that among all that machinery men can lurk unseen until you're almost on top of them. You need that extra weaponry you picked up earlier if you're gonna have any chance of making it.

But if you get this far, there's nothing between you and the governor. Except, that is, for the jail itself. There's an irony in that the fortifications designed to keep criminals in instead help them to keep you out.

You've got no time to reflect on the subtleties of life though – now for an all-out assault. It doesn't matter if you're exhausted, you've got to give it everything for the one attack that matters.

Again, some of the hardware you acquired earlier is going to come in very useful indeed. But none of it's any good if you haven't got what it takes . . .

Breathless yet? It's nice to report that the graphics and animation match the hectic gamesplay. There's no mistaking you as the city cop as you join the fray against the marauding multitude, nattily kitted out in prison issue navy blue. Everything's just got that style which characterises the better arcade games that used to be called attention to detail.

The sound effects are pretty awesome, too. The snatch of speech at the beginning is some of the best I've heard on the humble Arnold – for once you can tell the sex of the mystery voice.

Flinch as the bullets whizz past, shudder as the explosions whumph just inches away, and get deafened by the heavy artillery that you use to blow away nearby masonry.

As my grandfather never used to say, if you're doing a shoot-em-up, make sure there's plenty of fast, destructive shooting. And that there is. In fact, with all the machinations of hostages, hardware and hideyholes it's more than a mere zapperonie. It really is a case of doin' it to them before they do it to you!

ACU

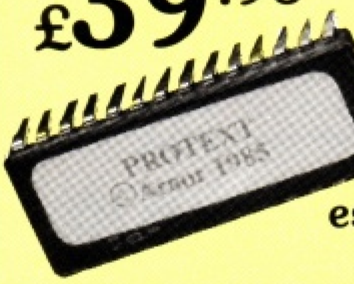
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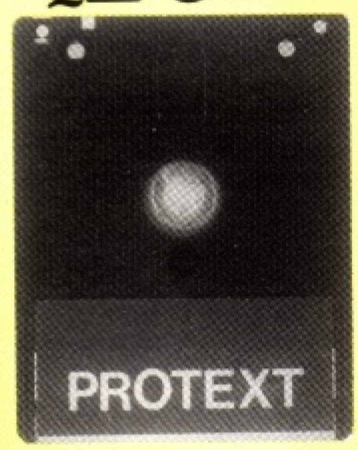
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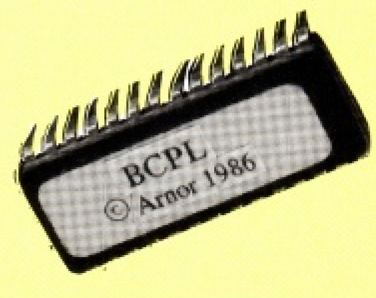
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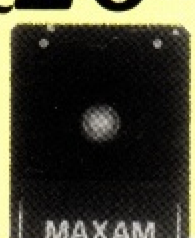
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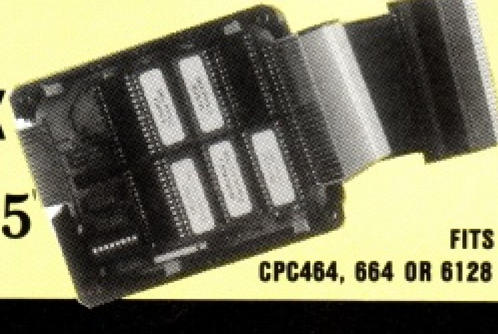
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Pint-size power

John Silver takes a look at Mini Office II for the Amstrad CPC range and discusses the advantages of the all-in-one software concept.



Packages such as Lotus Symphony and the like are all very well for PC owners who can afford the several hundred pounds asking price for site licences for such software. But what of those home and small business users with Amstrad 464, 664 and 6128 machines and relatively small budgets for their software needs?

The price of good software for most popular computers has taken a tumble in the past few years, thanks to entrepreneurs like Alan Sugar with his amazing value-for-money range of computers that have brought computing power to the masses at budget prices.

Whereas a couple of years ago a typical word processing package for, say, the BBC Micro would have set you back £30 or so, we're now seeing that price fall to as low as £10.

But what happens if you want a card index or database program to keep your names and address files on – or a label printing program to print out those addresses for your Christmas cards?

Maybe you want to plug in a modem to your Amstrad and log-on to the exciting world of computer communications?

It all mounts up – at £10 a throw for a word processor, database, spreadsheet, business graphics, communications and label printer set of programs you're looking at a potential dent in your pocket to the tune of £50. And that's even if you shop carefully with the excellent budget range of software around today.

Add to this the problem of porting data from one program to another. For example, you may want some addresses from your database integrating into a letter that you just composed on your word processor. This is not possible on several popular business packages for the CPC series since the way in which they store their datafiles is inconsistent.

In the early days of the IBM PC this was a problem, and the solution was to sell integrated software. This could be loaded in off a disc system, paging in the various functions – word processor, database, label printer and so on – as required.

Mini Office II, available in both tape and disc configurations for all types of CPC machines, is just such a package.

Mini Office II's six modules – word processor, database, spreadsheet, graphics system, communications and label printer – each fulfil a role in their own right. Yet they also maintain continuity between modules in the shape of common command keys and data transfer (porting) between programs.

Menu driven

In common with several other programs of its genre, Mini Office II is menu driven. It allows you to step though a series of prompts using the cursor keys and to select a menu choice with Copy/Enter.

In true Chinese puzzle style, each menu choice leads to more until, as with any good maze, your goal is reached. Unlike a maze, however, Mini Office II's menu choices are clear and logical and offer a return path if the wrong choice is selected.

The word processor

Producing correspondence, memos and letters is by far the most common reason for the purchase of a computer in businesses today. Mini Office II's word processor fulfils the basic functions more than adequately but, and this is a most important point, it does so at a fraction of the cost.

A word processor, in common with many other business programs is only a tool in the hands of a user. It cannot create quality letters but I'm happy to report that Mini Office II has all the functions needed (and a few more) to make life a lot easier for the beleaguered journalist, pressured by ever-advancing copy deadlines.

A good word processor should free the mind of the user to let him concentrate on the task in hand – writing. This more than fulfils that function.

True insert and delete, on a character, word, and block basis, along with the often expected – but sometimes not supplied – printer control commands, combine to make word processing the easy task it should be.

Unlike many word processors available today, however, it allows you to choose how to have your text displayed on screen – 20, 40 or 80 columns.

20 columns is suitable for very young children and the visually handicapped, although I find it a bit of a pain to be presented with an almost cinemascope version of the text to type in.

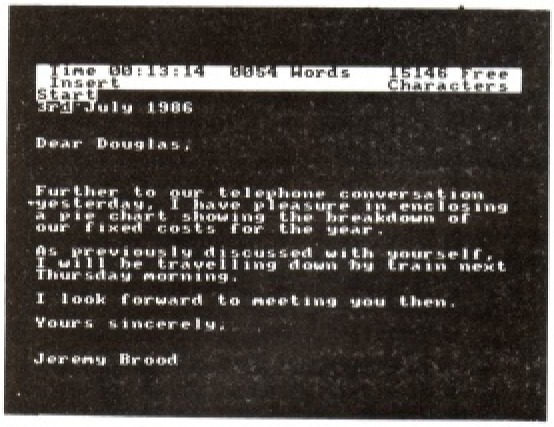
40 column, on the other hand, is clear, legible and easily displayed on the CPC's colour monitor screens.

80 columns is a little more subjective. For green screen CPC users it functions admirably, but for colour users there is a slight stippling effect that can cause a slight headache after a while. I would stress, however, that this is due to the display limitations of the CPC colour monitor screen – it's just something that colour CPC owners have to put up with. The alternative – a green screen monitor – may be too much to swallow for the sake of a clear 80 column display, particularly if the kids want to play games on the Arnold.

For most users the 40 column display is a good choice and allows easy text viewing.

Printing the text is of course totally under your control. You set the page width and length, as well as text formatting. In this way it's possible to enter and view text in 40 column mode and print out in 80 columns – a nice touch.

All the text is held in ram, which has



the advantage of making the program quite fast but limits the amount of text you can deal with at one time to about 4,000 words.

Another nice touch is the on-screen clock and word counter which appear whenever text editing mode is entered – very handy for journalists asked to produce 1,200 words by 9 o'clock.

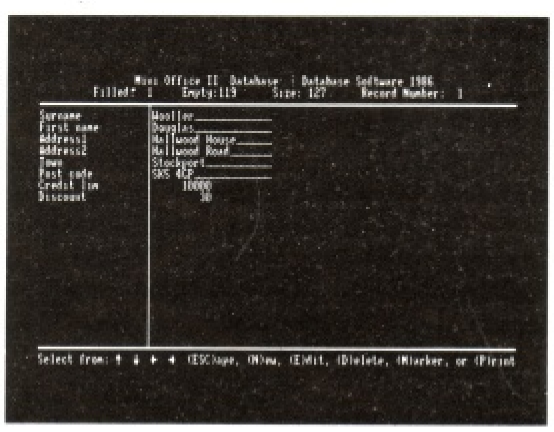
To negate the problem of the colour 80 column display, the software author has included a series of control functions that allows both the foreground (text) and background to be stepped through the several colours available on the software. This feature is not to be found in the word processing module on other versions of Mini Office II – most notably for the BBC Micro range.

The database module

Like the famous PC program Cardbox, Mini Office II Database program requires you to define and save the shape and format of data records – in essence design a data template to be called up whenever relevant data is required to be viewed and or amended.

Unlike Cardbox and several other database programs available, once a data template has been created it can be modified. And subject to certain constraints such as field length, existing data can be freely displayed within the modified template. This is particularly useful if, for example, you expand your listings to include birthdays – rather than having to rely on that tatty old diary on the sideboard.

Those Amstrad CPC users who own an AMX mouse will be glad to know that an AMX-compatible option is open to them on the database module's copious menu options. However, the system is not icon driven in the usual mousey way.



As with the word processing module, the database option throws up an on-screen status display on the top line. As you step through the control and shifted commands on the CPC's keyboard, the status line and various other message flags pop up to inform you of their progress or status.

The database also offers a data field calculation option by which the contents of one data field may be interacted with another to produce a tabular total/result column.

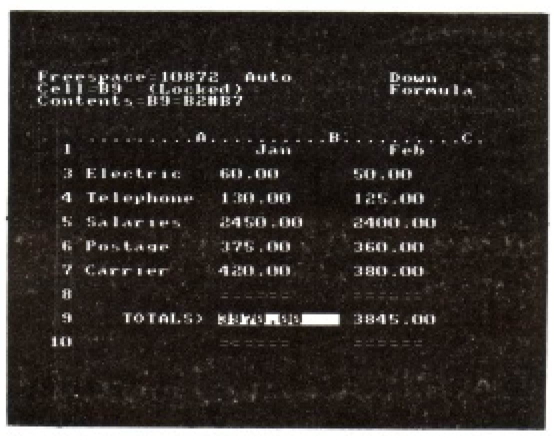
Beloved of accountants, this function is rarely seen and used in database programs, but when it's required it's worth its weight in gold. Top marks to the author for including this option.

The spreadsheet module

According to the manual there are five stages involved in the production of a spreadsheet. They are:

- Planning the layout
- Creating the layout
- Entering the formulae
- Entering the data
- Producing the output

Planning does not necessarily involve the computer. In most jobs today, planning is the key to effective management of that rare commodity – time.



It perhaps says something about the planning of the Mini Office suite as a whole that disc users can use the word processor to effectively outline the requirements of their spreadsheet format. And this before embarking on the seemingly simple, but in reality difficult, function of format planning.

The spreadsheet function is peppered with menu prompts, plus full on-screen flags to keep you informed of what you did last.

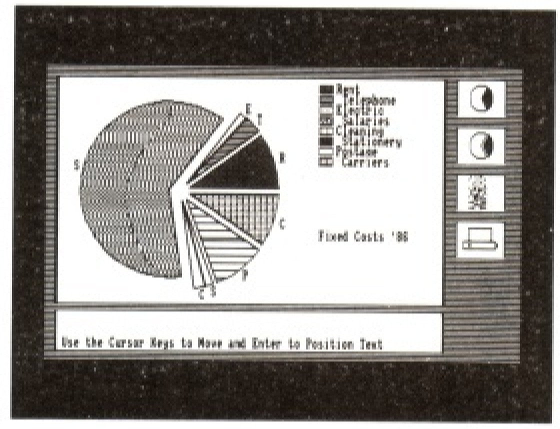
The graphics module

One little used function of integrated business software is that of the graphical presentation – good graphics are the key to an effective presentation.

They say a picture paints a thousand words and no where is this more true than with business presentations and reports.

Mini Office II offers several data formats for presentation of statistics – bar chart, line chart and pie chart.

For simple – that is, no more than three data sets – applications, pie charts will suffice. With several sets of representative data, bar and line graphs are the most effective means of data presentation.



As with several of the Mini Office II modules, an AMX mouse cursor control option is included.

Individual screens of graphs and/or pie charts may be saved as datafiles to either tape or disc for inclusion in other programs as a sort of slide show – a nice touch.

The communications module

My personal favourite is the comms module of Mini Office II, but my one major criticism is that it does not include Prestel viewdata graphics. This absence is not a serious problem, however, since there are several simple terminal programs available for this



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one function, even if it does seem a little out of line with the "all included in the price" principle of the package.

That said, the communications module has obviously been programmed by someone who knew what he was doing. The package has more bells and whistles on it than I have seen on many so-called communications programs.

Via the omnipresent menu selections, even the novice Amstrad comms user is guided through the intricacies of data, start, stop and parity bits. Perhaps as a gesture of goodwill on the part of the programmer, the default settings for the myriad communication protocols available is that used by MicroLink and Telecom Gold, British Telecom's electronic mail system.

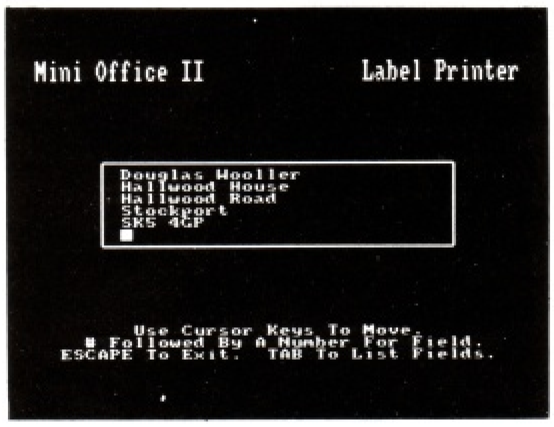
This makes logging on to most popular scrolling Ascii services a snip for newcomers to the program, even if they are not fully familiar with the CPC range itself. All controls both on and off-line are easily selected and unlike some packages the program doesn't cause the modem to drop the line when the menus are flipped back in.

A variety of buffer and display options are offered via the menu commands and as with the word processing module, a choice of 20, 40 and 80 column display is offered.

The label printer module

Last but not least is the label printer module. This function, often neglected, is fully supported and allows you to format the parameters of the labels required, right down to individual character positions.

As with the other modules, this option offers full merging of data created to and from the other application programs.



Conclusions

Mini Office II for the Amstrad CPC range attempts the seemingly impossible – to emulate combination packages which even today cost many times the price on other computers. In many ways each individual module would be very saleable in its own right.

My one gripe with the package is the absence of a Prestel display option with the communications module, but this is easily solved by using another program – several are available with the variety of serial interfaces which are sold for the CPC range.

I cannot fault the price or specifications of the package since it offers so much for so little. All I can say is that if any CPC owner requires two or more of the six functions offered then they should buy this program.

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PROTEXT PEOPLE

Jerry Muir vists the people who brought you Protext, Maxam and Utopia to find out where they came from – and where they are going to.

It could have been very different for Arnor if Enterprise had only delivered a micro as requested. It was 1984 when the idea of the software company was first suggested and, like so many people, its founders were impressed by the promise of the new hardware.

But time dragged by and the Enterprise failed to appear. Then a new star rose on the horizon and, tired of waiting, Arnor quickly transferred its attention to a computer which was actually available.

It was the beginning of a long romance that has made the company one of the best respected software houses dealing solely with Amstrad computers.

Arnor has recently moved into new premises in Croydon to provide much-needed space for its continuing expansion and it was to celebrate this, along with the release of Model Universe for the CPCs and Protext for the PCW, that I made my way to South London to meet the Arnor Amstrad enthusiasts.

Of the three directors, company Chairman Mark Tilley is the key to Arnor's formation. He knew David Fisk from their school days. But while David went to Oxford, Mark went to Cambridge to study maths and there he met Gavin Every.

Like so many fledgling software companies, Arnor started small. All three men had found jobs on leaving university and when Mark suggested they should start to write software, they were working from their homes.

As David recalls, "We started by just running off a few cassettes."

Now the three are kept busy all the time, so it's left to another David – Mendes – to fill me in on the company's history since those first few days.

Though he didn't join the ranks till the company was already fairly well grown, as Marketing Director it's his job to know the story of its success.

"The first project was Maxam, an assembler written for the 464. To write any good software you need a decent assembler and there weren't any around at the time – so they decided to write their own."

Appearing on cassette and disc, Maxam sold well. It was helped along by a feature in this magazine, in June 1985, as David Fisk is quick to point out. In fact it sold so well that he was able to leave his job at Whitbread, though he confesses that at the time this step seemed "a bit mad".

Meanwhile Arnor had another trick up its sleeve, as David Mendes recalls.

"They pioneered rom software for the 464. The machine has all the firmware built into it to support roms but Amstrad, for one reason or another, decided not to take it any further.

"They didn't produce a rom box and there was none around at the time. But it was a great shame to waste all that firmware."

Arnor therefore decided to build a complete, plug-in cartridge that exploited this potential, so Maxam could be brought into operation without it using up any valuable ram.

They didn't do this totally alone though. It was a customer who suggested building a rom box to hold a chip. "That really opened people's eyes to our product because, being on rom, it was different."

Overseas sales followed, to markets as far afield as New Zealand. But even more impressive was the order for Maxam chips from Amstrad itself.

"Amstrad technical people started using them because of the convenience of just plugging in." The rom assemblers are also incorruptible, which can be important if you're poking around the memory in machine code!

Meanwhile two other products were under development. The step from assemblers to word processors wasn't that great, as Maxam contained a screen editor for producing source code. It was a natural progression to turn this into Protext.

Utopia, Arnor's other utility program, was also available on rom. As David Mendes admits, "It was something that was very important for in-house use and a lot of the routines had been written for that purpose."

It's an apt name for a program, which must seem like heaven to the beleaguered programmer, containing as it does some 45 new commands ranging from disc utilities to graphics. You can copy or format discs without having to return to CP/M or use Dedit



David Fisk: He gave up drink for software

to save corrupted discs.

Working in Basic you can find keywords or Ascii strings, or list all variables. You can even dump screens to the DMP printers, with full 27 shade graphics. Finally, if this all sounds rather too technical, there's full help support contained in the chip.

However, David confesses that the need for a rom box has been a bit of a stumbling block for mass sales. "You get an eprom and you think, where do I put this?"

Unluckily, putting it on disc or tape defeats the object of having its services ready and waiting but clear of the ram. However, the appearance of several new rom boxes could give Utopia a new lease of life.

There are no such reservations about Protext, which is available in all three formats and has gained a considerable following. Good reviews in the press were matched by enthusiasm from its users. These included some of the journalists, who liked what they'd tried so much that they stuck with it.

"It may not be the top-selling word processor on the CPCs, but it's certainly up among the top three. It was 12 months later than its competitors, which makes it hard to catch up."

But that delay also gave Arnor the chance to learn from the competition, and in David's opinion, "It's probably the most powerful and flexible package available for the machines. And it's certainly the quickest."

When it comes to power, Arnor is very proud of a press quote that says the program is comparable with dedicated machines costing five times the software and hardware combined.

And David reckons that the speed advantage makes it highly suitable for the novice user, who won't be left sitting for any length of time wondering what to do next.

"Taking that further, once you're accustomed to the package, you don't want to wait anyhow."

Now Protext is available for the PCW, this could be seen as a distinct advantage over LocoScript. David is charitable enough to say that "LocoScript is suited to a different purpose. If you use it for short notes it's good.

"But things have moved on since the PCW appeared and Protext is more powerful than LocoScript, even with LocoMail."



David Mendes claims Protex is more powerful than Locoscript

In addition to its speed, Protext boasts single key entry for all its functions, which makes it easy to use. It can be used with all Amstrad-compatible printers and supports all the features you could hope to find in a word processor – and a few more.

There are six foreign character sets built in, all of which can be mixed in a single document. And there's a wide range of print effects, including the choice of pica or elite faces.

Despite these sophisticated options, I had to ask David whether he thought people with LocoScript would be willing to pay for this alternative. His answer was frank.

"I think a large percentage of people will be quite happy with what they've got and anyone that thinks differently is under an illusion.

"The type of people who bought the PCW are inexperienced users. They took their box home, plugged it in and they're set up for the next ten years. But there is a percentage who will get turned on to computing and start reading the magazines.

"Amstrad did a very good job of marketing the machines. A very large number has been sold internationally and even though only a very small percentage of users will look for this type of word processor, the actual numbers will be quite high."

Arnor has already dipped a toe into the Joyce market, beating all competition in the spelling checker stakes. Prospell has been lavishly praised when used as a stand alone with LocoScript. The PCW Protext package includes it with the word processor.

And there's also Promerge, a dedicated mail merge program, which makes the £79.95 selling price look very competitive indeed.



Gavin Every was a founder member of Arnor

Changing machines, and continuing to stay right up to date, Arnor's other project is Model Universe for the CPC range. Anybody attending the last Amstrad show is sure to have been impressed by this 3D graphics package, and I was able to see the penultimate pre-release version.

I asked David to describe Model Universe, but he felt that the best way to explain it was with a demonstration and shepherded me over to a waiting 6128.

At first working with it is very much like using any graphics package. You fix the starting point for a line, move the cursor to where you want it to finish and fix it again. That's all very well for two dimensions but it becomes a whole new ball game when you add a third plane.

You can keep the same view, which means that you have no idea of depth, or flip through 90 degrees to see yourself drawing "out of" the X,Y axis.

My doodle was little more than a collection of lines which would have made even a contemporary minimalist artist weep. But despair would have turned to joy when he saw what came next.

The spindly collection of sticks revolved in space smoothly and at a very respectable speed, thanks to the programmer writing his own line drawing routine. There was more to come.

Returning to the main menu – and the whole program is very easily cursor-controlled – we loaded a demo of a house and moved towards it with the zoom facility.

The movement was slowed by the complexity of the picture, but it was still quite amazingly smooth considering all the calculations that were taking place.

We turned round the house and finally continued to zoom – right in through one of the walls. Even that wasn't the end of Model Universe's tricks. Once inside the desirable residence it was possible to turn on the spot, as if we were circling on the floor,

then fly up towards the ceiling.

I was suitably impressed. "How did it come about?" I asked, once I'd picked my jaw off the floor. David laughed. "It arrived in the post. That's how." What a wonderful, unexpected gift.

"We feel that we've got a reputation for quality software on the Amstrad machines. And because we only publish for the Amstrads, if people have written anything for those machines we tend to be on a short-list – and sometimes the only one on the list!

"When Model Universe arrived it was not far from being up to standard and with a little help from the author and ourselves it became a good package."

With so much graphic power to hand, it's good to know that you can save screens to disc or tape in either of two ways.

You can store the three dimensional details, so that you can return to examine or modify them at a later date, or you can save the screen display as a flat, perspective line drawing or dump it to a picture.

In practical terms I can see the package having business applications in many areas of computer aided design. I asked if there's going to be a Joyce version:

"Yes, but the programmer doesn't know it yet – we've not told him. Maybe he'll read it in ACU", David said.

But let's not forget the other aspects of Model Universe. If flat computer art is fun, you'll certainly double your pleasure when you can create objects inside your monitor. I could have happily played with this program all day.

Of course it's possible that inspiration will desert even the most determined Arnold da Vinci. And for those moments, there's a bonus lurking on the other side of the disc as Gatecrasher, a colourful strategy game.

It's a test of reasoning as you try to tumble barrels through a series of gates. It's rather like one of those fairground machines that always seems to roll your 10 pence into the Lose slot at the last moment.

It's a nice extra, better than several budget titles I've seen, and I tell David so. He blushes slightly because, yes – he is in part responsible for the program, which he wrote way back for the BBC Micro.

It was then marketed by Amsoft but met with less than a startling response, which was hardly surprising considering the distinct lack of advertising. I must admit, I like it.

Moving in the opposite direction from even the brainiest arcade game, Arnor is currently developing one of Mark Tilley's special interests, the language BCPL.

Though it's not widely known, Mark says that it's flexible but simple and very fast to compile, with similarities to C. It will be available on all the machines.

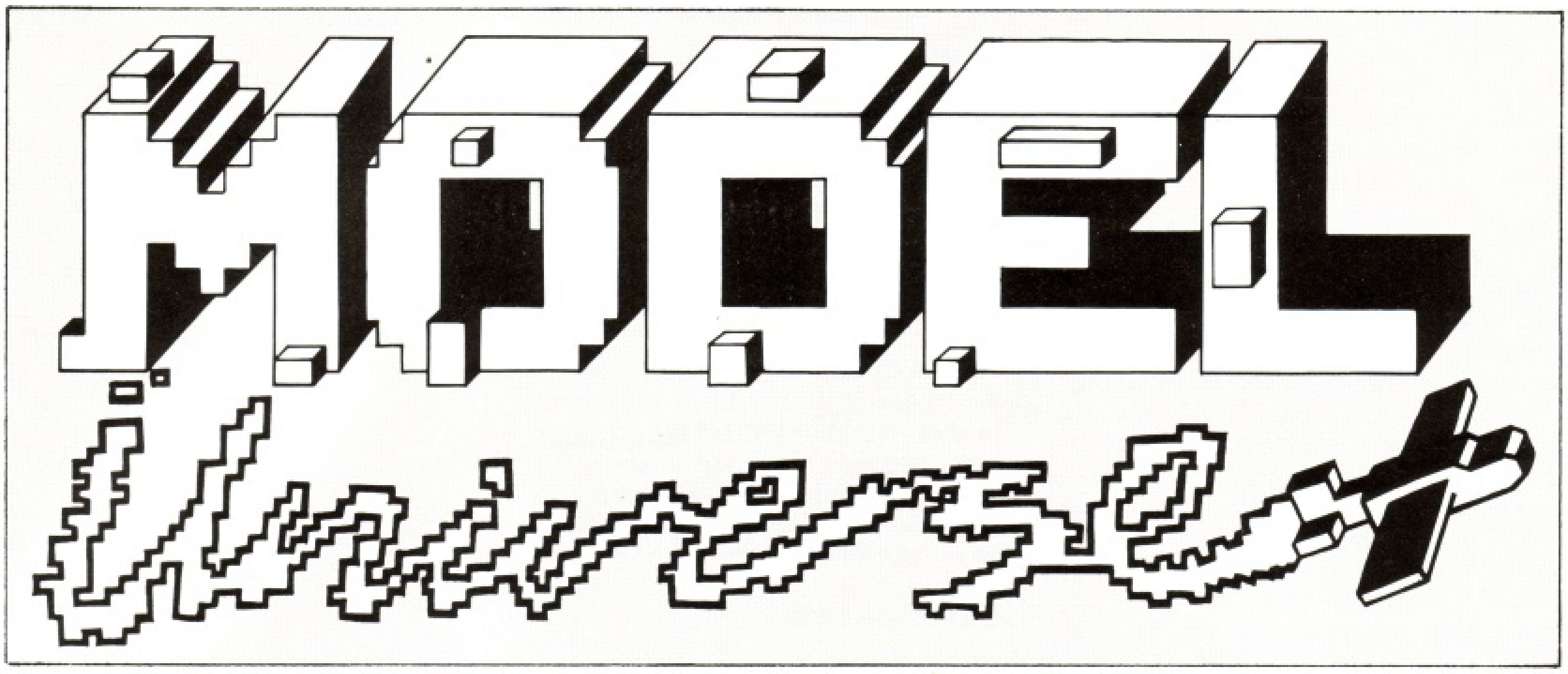
There is also a great deal of interest in the PC market, thanks to the PC1512. From hints dropped by David Fisk, nobody should be surprised to see a version of Protext appearing for that machine.

There is also talk of an updated Maxam with a version for the PCWs, to include what David Mendes describes as the best CP/M debugging monitor around.

But whatever happens, Arnor intends to stay faithful to Amstrad, the company with which it has grown.

As David Mendes says, "It's not been a conscious decision to stick with just one manufacturer, but for the last two years it's been what we feel is one of the better machines to write for."

ACU



Alex Martin examines Model Universe, a 3D design package for the CPC

Model Universe, Arnor's latest package, allows you to create a three dimensional model displayed on the screen of your CPC computer. The shape or structure can then be viewed from any angle, projection or size.

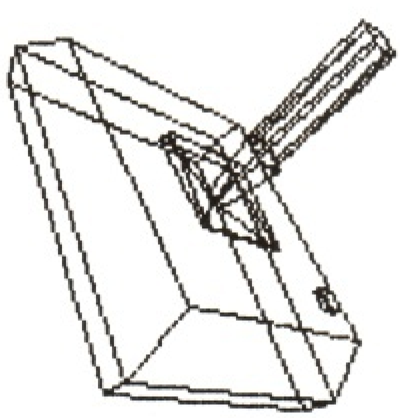
This program is of use to artists, designers and engineers, but is of interest to anyone who fancies doodling a shape and then displaying it in a three dimensional form. Everyone must have seen the type of wire frame graphics used in tyre and car adverts. The program is really in two parts, entering the data and then displaying it in 3D.

The program

Model Universe comes on a disc or cassette with several demonstration files and clear instructions on how to use it.

On booting you have two options, a demonstration or the main program to create and display structures. The demo loads and displays a file containing data to draw a joystick. It then rotates the joystick, flys over and around it and zooms in and out. This gives a pretty good idea of what Model Universe is capable of producing, although the joystick must have taken a good few hours to enter.

The create and display program's main menu options are Design and Display, Load File, Save File and



Catalogue Disc. A couple of options allow the back and foreground colours to be changed and your final choice is Destroy File, which in an ideal world (or should that be a model universe) would show your structure being blown to pieces like a Battlezone tank. Instead it is simply zapped from memory.

It's a draw

Selecting the design option puts up a screen with a central crosshair and an arrow cursor pointing to the current position. The edges of the screen are marked out to give you a rough gauge of size.

At the bottom is a panel giving you a readout of the current x, y and z position of the cursor and number of lines used.

The program only allows up to the magic number of 255 lines and vertices (corners or intersections of lines) to be used. This is generous in normal use, but a couple of smooth sectioned circles and extending a complex shape will quickly gobble up your allowance.

Another menu controls the design of shapes. The first option is to enter design mode, where the cursor can be driven around the screen using either the keyboard, a mouse or joystick. Keys on the keypad select draw a line to last position, delete the last line and set the start for the next line – all very straightforward, no surprises here.

Escape takes you back to the design menu, where other options allow the position of the structure to be moved up a bit, left a bit and so on. The angle of projection can be altered so that instead of looking at the structure from the side it can be viewed from the front or top. One facility is described as circle, pretty obvious what that's for really. Essential for wheels and tubes.

The option to enlarge the structure is useful. By selecting a larger scale, drawing a shape and then reselecting the smaller scale you can create details on your structure.

The extend function is last on the list and this is really useful. Say you have just drawn one end of a room. Rather than re-enter all the same data for the other end when you know the dimensions are identical, the "wall" can be duplicated by using the extend command.

A value is given and the wall is shifted by that amount in the Z plane bringing the wall up toward you out of the screen. A yes or no option specifies whether the corners of the shape are joined by lines from the duplicates corners.

It is possible to set a flag which specifies all lines created from now on will be duplicated by extend. This is important if you are to use the option more than once.

Although extend is useful and can save a lot of tedious re-entering of data, it is also limited.

A feature missing from Model Universe is the ability to reflect a shape or part of a shape and create a symmetrical object. This would make it much easier to draw aeroplanes, cars and the like as only one side need be entered.

I found it difficult to draw a line between coordinates in two planes. There is probably a little tip that would make this easier to do, but I haven't found it yet.

If you make a booboo a Ctrl C

command takes you back a step. A sledgehammer approach involves repeatedly using the delete the last line command and winding back your carefully knitted structure.

Putting on a display

Now that a structure has been created it can be displayed. Pressing Tab while in design mode enters display mode, or it can be entered from the main menu.

Changing the object's display is straightforward using the cursor keys or joystick. The initial starting position depends on the view selected by the design part of the program.

The object can be zoomed in on, flown around, under and over. The speed at which this happens depends on the complexity of the structure. A very simple shape is rotated and flipped very quickly.

There are three different modes of display, involving your viewing position, the object's position and how the input is interpreted.

At any point a menu can be brought up allowing you to reset to the initial position (useful if you've lost the image off the edge of the screen), change the steps between different projections as the viewing position is changed and output the current projection.

The output option has its own sub-menu providing disc or tape output of a binary screen file and a screen dump to Epson compatible printers.

Finally there is a Basic output option. This saves the coordinates of your shape in a form that can be read by Basic.

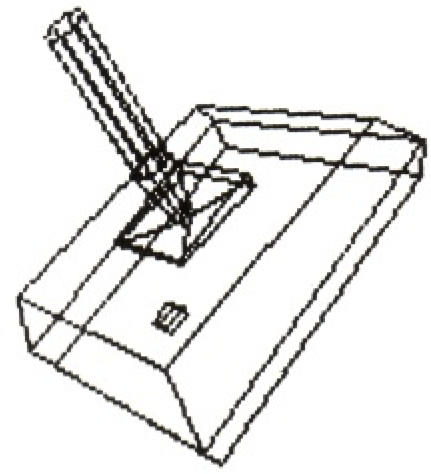
The program, as supplied, uses a Basic loader with a built-in routine to send these variables to a Tandy printer plotter. However the instructions point out that the loader can be altered and the information output from this option used in your own program.

Conclusion

Model Universe is well written and easy to operate, but that doesn't mean you'll find it simple to sketch your Granny in 3D.

It is quite possible to produce excellent results. However like so many utilities, the result depends on the effort put in. Just as an art package won't turn you into an artist, Model Universe won't turn you into a designer.

Whether it is up to professional use



I'm not prepared to say. At one level it might be useful to a kitchen designer preparing a rough idea of a layout but on another it could be a complete waste of time.

One thing that is very impressive about Model Universe is its speed.

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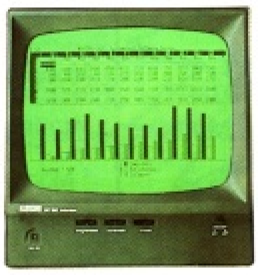
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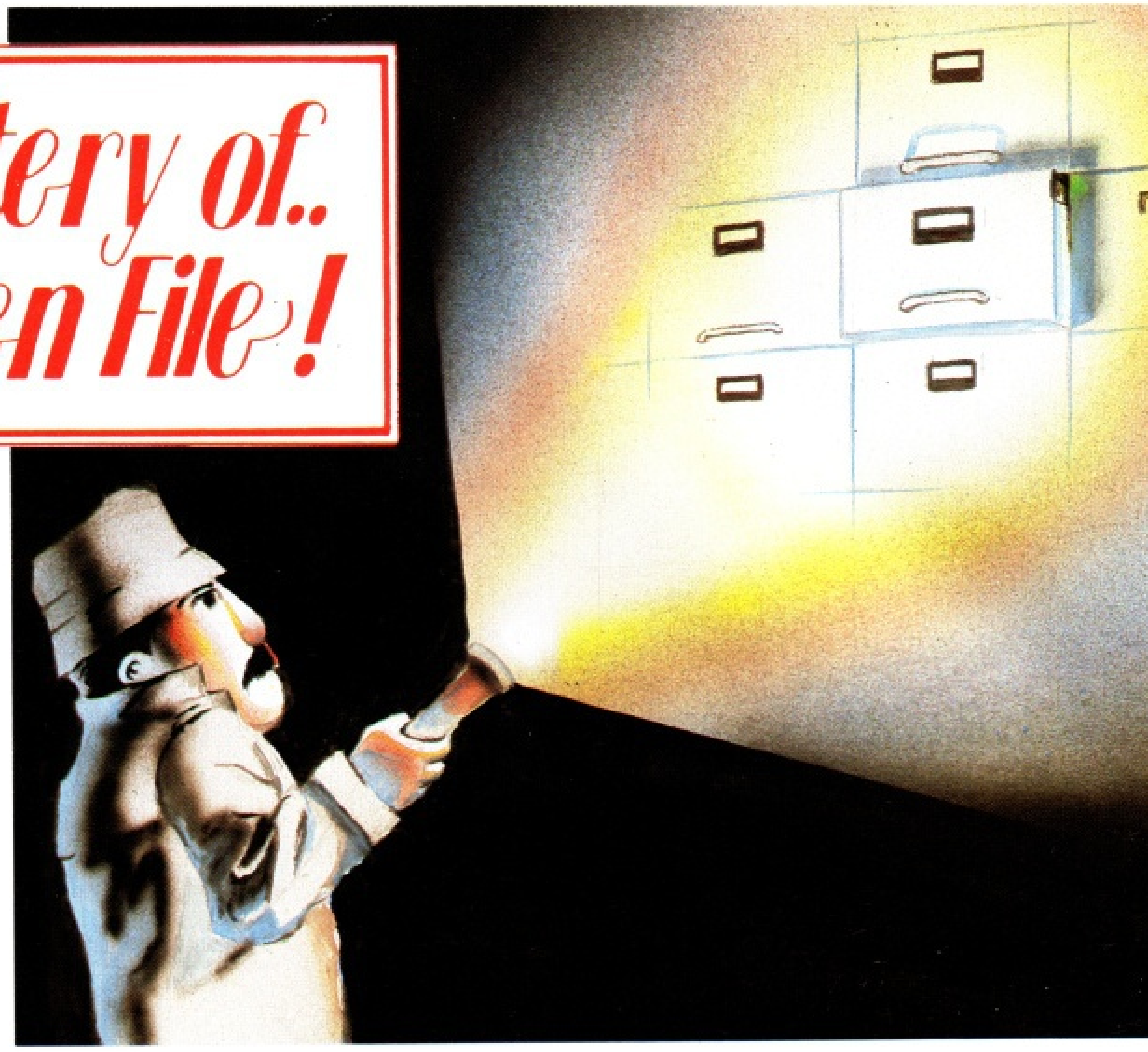
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The Mystery of.. the Hidden File!



Our resident PC expert, Robert Schfrieen, looks at some more tricks up the MS-dos sleeve.

In this month's look behind the scenes at the way MS-dos works, the area in the spotlight is a special byte called the File Attribute. Every file stored on an MS-dos disc has its own attribute byte, which is used to tell MS-dos certain things about the file.

One such piece of information is that the file is read-only and cannot be deleted. Therefore it is a good idea to make important files read-only to prevent them being deleted by mistake.

If you take this step do it only on program files, not on data files, for once a data file is read-only you won't be able to update it.

For example, if you want to edit a word processing document but the document is read-only the word processor will not be too happy when it tries to update the file on disc and cannot.

A read-only file can be renamed, but the new file will still be read-only. If you make a copy of a read-only file using the MS-dos COPY command the copy will not be read-only but the original will. Therefore making a file read-only is not a good security device to stop other people altering your data, as they could still copy the read-only file, alter it and then rename the altered version.

The best way to keep a file secure would be to hide it completely from Ms-dos so that, although you know the file exists, Ms-dos doesn't. That would mean that the file wouldn't appear on the screen when you typed DIR and, to use the file, you would have to remember its name and what directory it was in.This is called a hidden file.

Making a hidden file is quite easy under Ms-dos, but unfortunately no program is supplied to do it. The ATTRIB program on the Ms-dos disc will let you make a file read-only (I'll explain how to do it later on), but it won't let you access the part of a file's attribute byte that defines the file as hidden. Table I is a new Ms-dos utility which will allow you to hide (and subsequently reveal) any file. I'll show you how to convert the values into an Ms-dos program shortly.

The attribute byte of a file is split up into 8 bits, each of which has a separate purpose. They have the following functions:

0: If set the file is read-only.
1: If set the file is hidden.
2: If set this is a system file – one of the special files on a boot disc that make up the Ms-dos system.
3: If set the file to which the attribute byte refers is not really a file, but the volume label of the disc.
4: If set the file to which the attribute byte refers is not really a file but is the name of a subdirectory.
5: Whenever a file is backed up using the BACKUP program this bit is set. It is known as the archive bit. By checking it the BACKUP program can tell whether or not a file has been backed up.

The remaining two bits in the attribute byte have no documented purpose in the current version of Ms-dos.

The attribute byte for a file is stored in the directory, immediately after the file's name. You can't normally see the attribute byte unless you have a special program like the Norton Utility, which permits you to see it.

Now that we know what the attribute byte is let's think about how to alter it. The Ms-dos ATTRIB command lets you change 0 and 5, the read-only and the archive bits. I'll run through its use here, but the full description is in Book 1 on page 294.

Before you use ATTRIB make sure that you are using Ms-dos and that you are at the Ms-dos prompt – A> or B> or C>. Also see that the disc in the drive has a copy of the program ATTRIB.EXE on it.

Typing ATTRIB followed by the name of a file will display the file's name. If the file is set to read-only an R will appear to the left of the name. If the file's archive bit is set (that is, the file has been backed up), an A will also appear next to the file's name. So typing:

ATTRIB TEST.DAT

might produce:

R A C:/TEST.DAT

This shows that the full pathname of the file is C:/TEST.DAT (it is on drive C: in the root directory), and that both the read-only and archive bits are set.

You can use wildcards (the * and ?

characters) with ATTRIB, so typing:

ATTRIB *.*

would show the details for every file in the current directory.

Between the word ATTRIB and the name of the file, you can put one of four things:

- **+R** To make the file read-only.
- **–R** To remove the read-only status from the file.
- **+A** To set the archive bit.
- **–A** To clear the archive bit.

So, for example, typing:

ATTRIB +R TEST.DAT

would make the file TEST.DAT read-only. All the other attributes of the file are unaffected. Also the command:

ATTRIB –R *.*

would remove the read-only status from every file in the current directory.

Using RPED or any other suitable program, create a test file on disc. Call it TESTFILE.TST. Now, at the Ms-dos prompt type:

ATTRIB +R TESTFILE.TST

to make the file read-only. If you now try typing:

DEL TESTFILE.TST

to delete the file, you'll see the message:

Access Denied

and the file will still be intact. I'll leave it up to you to work out how to remove the read-only protection and delete the file.

Hiding files

My favourite bit in the attribute byte is the hidden bit. If a file has its hidden bit set to 1 the file becomes a hidden file. If the hidden file is the name of a program (like ATTRIB.EXE, say), you can still use the program as usual but only you will know that the file exists. It will not appear in the list of files when you type DIR.

This is extremely useful if, say, you want to stop someone using the FORMAT command on your computer. You could, of course, remove the FORMAT.EXE program from the disc, but this would mean that you couldn't use it either.

A neat way round the problem is to hide the FORMAT.EXE program by setting the hide bit in the file's attribute. Of course anyone could still use it by typing FORMAT, so you should rename the file to a secret word before you hide it. You mustn't rename the .EXE part, though.

So if you were to rename FORMAT.EXE to FFXX123.EXE, and then hide the file, no one could use the program except by typing FFXX123 at the MS-Dos prompt. And, because the name FFXX123 will not appear in the directory, no one except you will know that it exists.

As the ATTRIB program won't let you get near the hidden bit of a file's attribute I've written a program that does the job. I is called FLIPHIDE .COM and you run it by typing FLIPHIDE at the MS-Dos prompt. I've called it FLIPHIDE because it flips the hidden bit on a file's attribute byte. What this means is that, if the file is hidden, it reveals it again. If the file is not hidden, it hides it.

To create your copy of FLIPHIDE.COM won't take more than 15 minutes. Start up the computer with an MS-Dos disc that contains a copy of DEBUG.EXE on it, as you will be using the DEBUG program to create FLIPHIDE. Make sure, too, that there is enough space – more than 1,000 bytes – on the disc to hold the FLIPHIDE program. Also make sure that the disc doesn't bear a write protect sticker.

When ready, type DEBUG at the MS-Dos prompt. A dash will be displayed. Then type E100 and press Return. Some numbers will be displayed, and the cursor will be about 15 places from the left of the line.

Now type in the contents of Table I. Read across the rows from left to right and after each pair press the spacebar and not Return.

So first you type EB and then a space. Then 21 and another space. Then 90 and another space, and so on until you reach FF and finally C6 at the end.

The only letters in the table are a, b, c, d, e and f. I've made them lower case so you don't confuse a letter B with a number 8. If you make a mistake press Return to get a dash, type E100 and start again.

Once you have entered all the numbers press Return to get a dash. You have now entered the machine code program.

Tell DEBUG what to call the program you have entered. At the dash type a letter N followed by FLIPHIDE.COM (no spaces) and Return.

Again the dash will appear. Now you have to tell DEBUG how long the program is, ready to save it to disc. Type RCX and press Return. A colon will appear, plus some numbers. Type in 80 and press Return again to bring back the dash.

Now type W and press Return. You should get the message:

Writing 0080 bytes

and the FLIPHIDE program will be saved on the disc. When this has been done, the dash will appear again. Now, leave DEBUG by typing Q and pressing Return. The MS-Dos prompt come back. That's all there is to it.

Type DIR and you should have a file called FLIPHIDE.COM on the disc. This is the fliphide program.

Data for FLIPHIDE.COM

eb	21	90	45	6e	74	65	72
20	66	69	6c	65	6e	61	6d
65	3a	20	24	0d	00	00	00
00	00	00	00	00	00	00	00
00	00	00	55	1e	52	51	53
50	0e	1f	ba	03	01	b4	09
cd	21	b4	0a	0e	1f	ba	14
01	cd	21	83	c2	01	8b	ea
2e	8a	46	00	3c	00	74	2e
bd	14	01	b4	00	03	e8	83
c5	02	2e	c6	46	00	00	b8
00	43	ba	14	01	83	c2	02
0e	1f	cd	21	72	10	80	f1
02	b8	01	43	ba	14	01	83
c2	02	0e	1f	cd	21	58	5b
59	5a	1f	5d	cd	20	ff	c6

WARNING: READ THIS NOW!

If you have a hard disc system, copy FLIPHIDE to a disc and use it on the floppy disc until you are sure it is working correctly. Just in case you have made a mistake in entering the numbers, it is better to risk losing a floppy disc than the hard disc. In either case you create and use FLIPHIDE at your own risk. Also, it's up to you to make sure that you know which of your discs, if any, have hidden files on them, and what those files are called. MS-Dos, remember, won't tell you. If you find that fliphide crashes, and you suspect that you have entered the numbers wrongly, delete FLIPHIDE.COM from your disc and create it again.

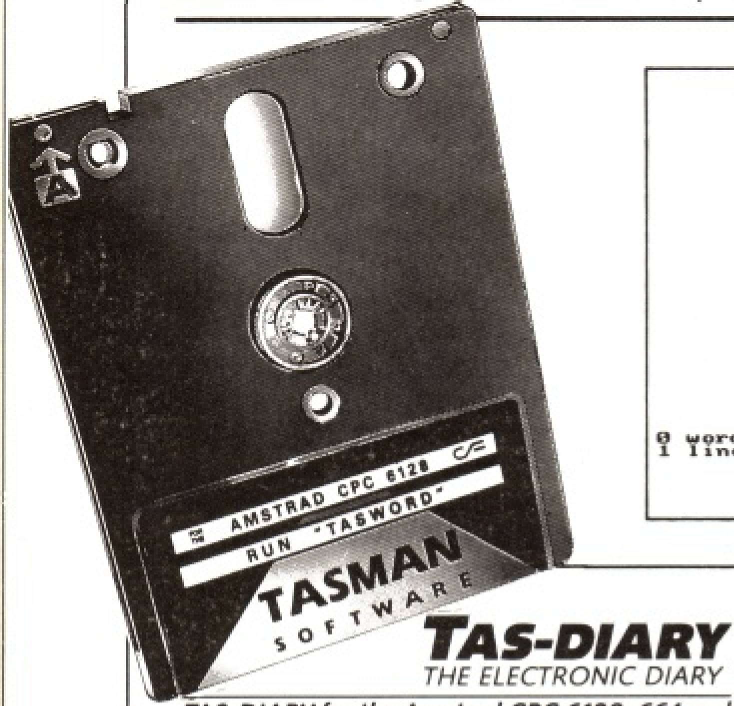
To use the program, type FLIPHIDE and press Return. You will get a prompt saying 'Enter filename:'. Enter the name of the file you want to hide, and press Return. Assuming that the file does exist, it will be hidden. Type DIR and you should see that the file does not appear. To unhide it, type FLIPHIDE again, and give the file's name again. The file will be unhidden, and should now show up in the directory.

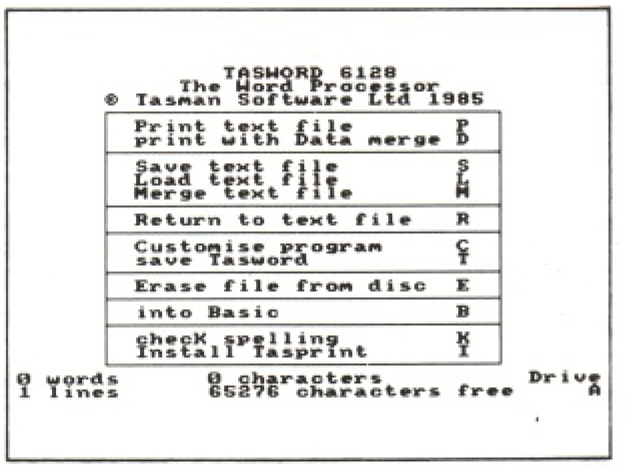
I'll sign off now, and leave you to have fun with FLIPHIDE. Remember that the program is for use at the MS-Dos prompt – it's not designed to work with Dos Plus.

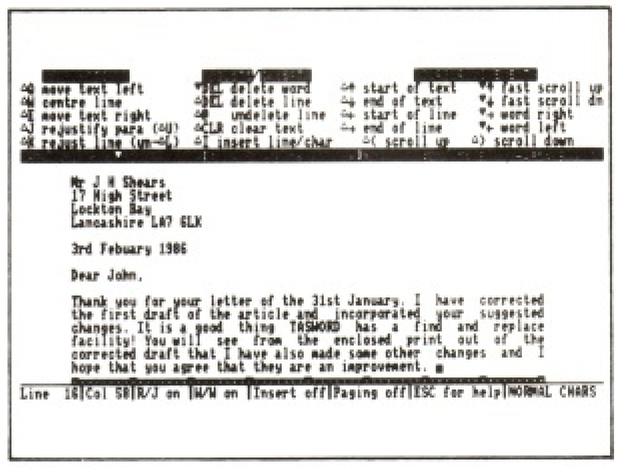
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POPULAR COMPUTING WEEKLY, NOVEMBER 1984

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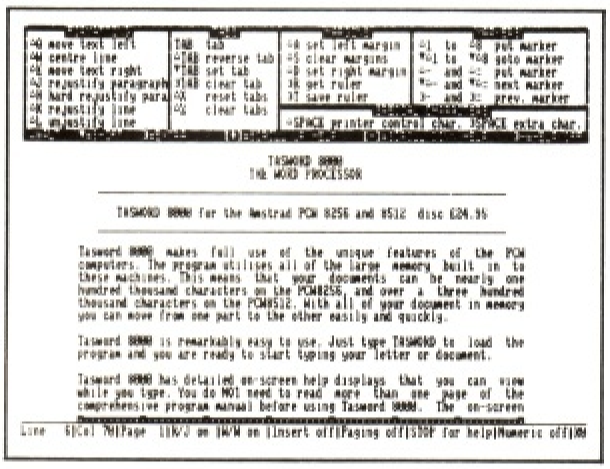
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TASWORD 8000 offers a fast and flexible approach to word processing on the PCW 8256 and 8512.

TASWORD 8000 has been especially developed to make use of the unique features of the PCW computers, utilising ALL of the large memory built into these machines. Your document can be nearly one hundred thousand characters long on the PCW 8256 and over 300,000 characters long on the PCW 8512. That's enough room for over 100 pages!

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DATA MERGE. TASWORD 8000 includes the powerful Tasword mail merge facility. You can store a list of names and addresses on disc and Tasword will print your letter, each individually addressed, to each of your intended recipients. The TASWORD mail merge is open-ended and flexible – storing names and addresses is just one application. Printing can be made conditional: just send a letter to addresses in London, for example.

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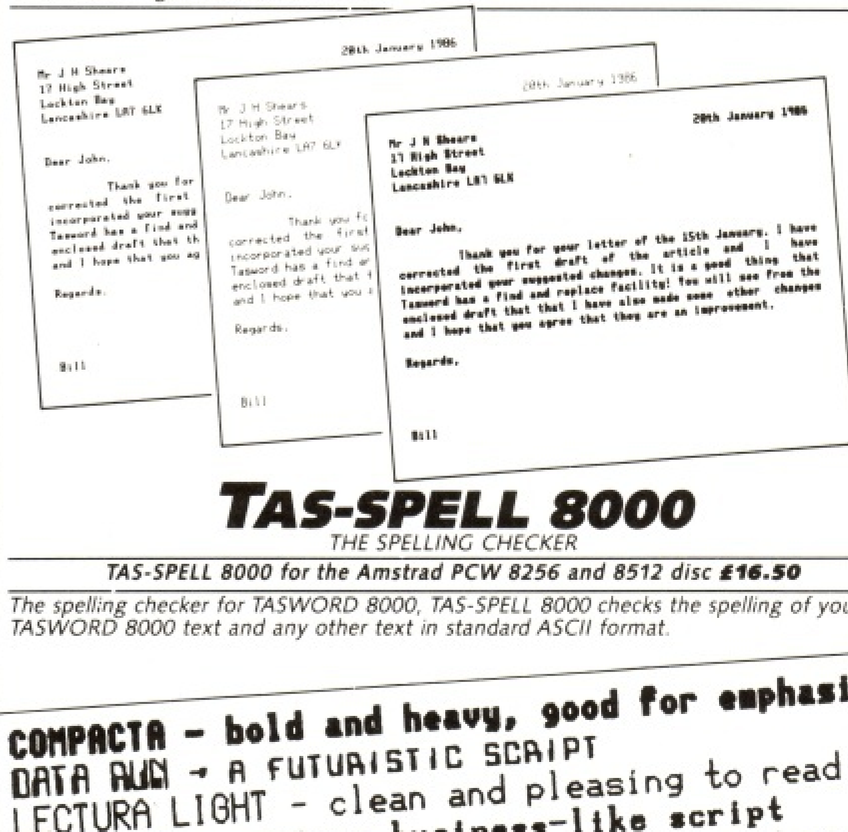
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The truth about TELEX

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You could go the conventional way and buy a dedicated Telex machine. The cheapest will cost you £1,604 (the Whisper), the dearest £2,892 (the Cheetah). You will also need a separate telephone line, costing £101 to install, plus £404 a year rental. That's a total outlay over the first year of a minimum of £2,109. (All prices include VAT.)

Or you could do what more and more Amstrad users are doing – use your CPC, PCW or PC to double as a Telex machine. And just use your ordinary telephone!

How do I turn my Amstrad computer into a Telex machine?

All you need is a modem and appropriate communications software (see the advertisements in this issue), a telephone, and a subscription to *MicroLink*.

Telex is just one of a growing number of services available to Amstrad users on *MicroLink*. With it you can also read the news as it happens, go teleshopping, create your own closed user group, send telemessages and electronic mail right round the world, download free telesoftware programs directly into your micro . . . and much more.

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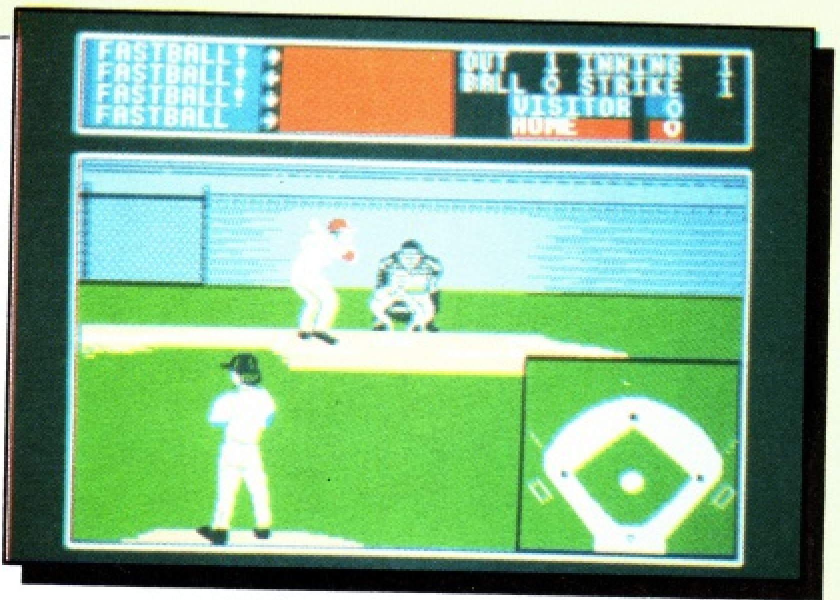
But there's a big bonus you get when you use *MicroLink* for Telex that the conventional way doesn't offer.

With *MicroLink* you don't HAVE to be in your office to send or receive Telex messages. You can just as easily use your computer at home (or even a portable). So now you can check whether there are any Telex messages waiting for you – anywhere, anytime.

How's that for your business efficiency?

MicroLink application form: Page 87

HARDBALL



Players of Trivial Pursuit will know that hardball, also known as baseball, is a cross between rounders and cricket.

The rules are fairly intricate for the novice to master. The idea is to score runs without – getting out – by running around a diamond. Each corner of this diamond is called a base, and depending on how and where the ball is hit the hitter can try and run any number of these bases. A full run is scored when all four bases are passed. With me so far?

Try this then: The pitcher throws the ball at the striker. Behind the striker crouch two heavily-padded and enmasked men, the catcher and the umpire. If the striker misses the ball, and it's within the catcher's permitted area, it's called a strike — because the striker didn't.

If the ball's outside the catcher's area, and the pitcher doesn't go for it, it's called a ball because it's a no ball. Three balls, and the striker gets to walk to the first base. Three strikes, and he's struck out. Hit a ball to the boundary, and everyone on the diamond gets their run. If a fielder throws a ball on to the base you're running to you're out.

That's the mechanics of the game, but they bear as much relation to what goes on in the US of A on Saturdays as putting bits of paper in a box does to the presidential elections.

Watch baseball on the TV, and all you'll hear from the commentators will be a stream of numbers interspersed with the occasional droll comment. This is really where baseball leaves its forebears statistically speaking. Each baseball player has his past history, strengths, weaknesses and peculiarities down as a set of figures. The art of running a baseball team is matching your players to the opponents on at the moment. And it's a fine art indeed.

Hardball – the computer game – has all this (without the droll comments). If you're bowling against the computer you can pick your style and speed, the better to get those strikes. In batting, you're limited to one of three types of shot, and whether you pick high, mid (body) or low depends on what you think the pitcher's going to do.

It isn't easy, and Charlie Brown has my sympathies. At any time, you can suddenly become the manager of your team (the Champs), and substitute, shuffle or scan your list of players. That side of things is taken care of with a nice and simple joystick/menu combo.

The runnin', swingin' and hurlin' bits are shown with a pleasing perspective-based style of animation which is as realistic as anything else yet seen on a humble Amstrad. The depth of strategy is unusual for a sports simulator. And, all of a sudden, all those American cartoons make sense. Move over Snoopy. My turn at short stop.

Author: Amstrad Gold
Price: Cassette £9.95, disc £13.95

Nigel

A bit hard to pick up, but well worth the effort spending a few hours coming to grips with it. The excellent graphics and wide choice of action mean that once mastered it becomes addictive pitching (!) your wits against the All Stars, in the form of the computer or a second player.

Your pride and reputation as the meanest striker/pitcher this side of the Atlantic is at stake with the flick of the joystick.

18/20

Liz

What a relief after Ocean's (yawn,yawn) World Series Baseball. The control you have in Amstrad's game, coupled with the excellent graphics, make this by far both the best thing Amstrad has produced and the most exciting simulated sport to date.

I loved having the chance to play all positions including manager, which enables you to substitute any player, like a pitcher who's giving away lots of runs. Having a number of options for pitching style and not knowing which is going to fool them increases the tension.

And having to switch quickly to fielders, or runners if you're in, gets the adrenalin pumping until you can almost hear the crowd . . . or was that the sound effects?

19/20

Colin

Let me say first of all that I dislike sports on computers. And then let me say I liked this game a lot. It's not just that I've always wanted to throw hard balls fast at Jack Tramiel, who appears as a player. Once I'd (almost) understood the jargon and rules, I got hopelessly involved in a game.

If it was just a matter of batting, bowling and running the graphics would be a good excuse to go for it; but add the business of picking players and amassing averages and it gets almost exciting. As it is, it's almost an essential purchase.

If Channel 4's baseball season catches on, this will be a winner.

19/20

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DRUID



Mrs Thatcher might be keen on the occasional stringent economic policy, but she's got nothing on the Princess of Darkness. Similarly, Britain in the late '80s seems like Disneyland compared with the Land of Belom.

Said Princess has been beastly all over said land, resulting in the sudden appearence of four Skulls. These are immensely evil and dedicated to the furtherance of unhappiness, darkness and East Enders.

This obviously can't be allowed to continue. To the succour of the troubled country springs The Druid. His (therefore your) task – the defeat of the Princess and all her millions of minions. Yeah, more minions. His only weapons – an assortment of spells.

These are quite a respectable selection and include magic to wallop the evildoers with water, fire or electricity.

Actual physical contact with any of Princess' punchy pals is to be avoided, as it saps your energy, makes your hair fall out and ruins your social life. Run out of energy, and you can cash in your golden sickle.

Energy can be replenished by a spell on a Pentacle of Life, the revolving five point stars that are scattered about.

Remember the skulls? They remember you . . . Their habitation is an eight-floored tower, which stands in the middle of the forest where all the unholy hankypanky goes on.

You obviously want in, but standing outside shouting "Rapunzel, Rapunzel, let down your long hair" as is traditional will get you nowhere and shatter any forest credibility you might have built up. Skulls are renowned for their lack of flowing locks and also have no sense of humour. What you need is a key.

Keys can be found in caskets. Caskets can be found just lying around. They can be persuaded to disgorge their contents, one at a time, by being bumped into.

However, the noise of the bumping attracts the attention of every meanie within orifaceshot and you have to dispose of them before you can do any more chest disgorging.

As well as keys, chests have a number of other utilities hidden within. Two of the more useful are the invisibility incantation and the chant of chaos.

This latter is a cross between a sorceror's smartbomb and Lucifer's lucozade; it de-minions the surroundings and enhances the old energy. Useful for the odd tight corner.

And if you're really lucky, you'll find the Dusty Bin of the druid world, a Golem.

You're thinking "But they came later, when Rabbi Josephi in the 13th century brought a man of clay to life and called it Golem (from the Yiddish Goylem, meaning a shapeless mass)." Cynic. He was probably a stone age Druid on the side.

And so the two of you battle into the sunset. Will you be the glorious leader that liberates the land, or just another by-election candidate?

Author: Firebird
Price: £7.95 (tape) £14.95 (disc)

Nigel

I loved the little wizard, sorry Druid, shuffling round the maze. Unfortunately he is, in my opinion, unfairly outnumbered by the bad guy demons, or maybe I'm just not quick enough on the joystick.

Anyhow, trying to get away from them sapped him(me) of the energy required to save Belon. Perhaps he'd stand a better chance if he could run instead of shuffling everywhere!

Good colourful graphics and interesting to play but I wish I could make it all end happily ever after.

16/20

Liz

Ah, but is Druid any good? Well, as the martial music fades away from the loader (the Wright stuff again, yawn), be prepared for another spellsizzling one-and-a-half player game.

Graphics good, sound sufficient, feel fine. Not bad at all. A few days fun to be had, especially if you've played and enjoyed Gauntlet.

17/20

Colin

Another song-while-u-wait loader by Melvyn gets this one off to a good start. The graphics don't let the side down either, even if they do only take up half the screen.

The scenery is a wee bit difficult to negotiate: Some shadows look as if they ought to be inpenetrable, thus wasting time while you weave your way round them.

The barley sugar-type twists that show how badly you're doing are a nice touch. This sort of thing may seem trivial, but it's that sort of attention to detail that keeps me at it, even when I get the rating Halfwit.

17/20



THEY STOLE A MILLION

Ever felt the need to rob a bank? Wanted to be a big wheel in the Underground (nah, not a tube train driver)? Feel like making a quick million, without paying HM Inspectorate a thruppeny bit? Right then, listen up. And listen good.

The Activision mob has come up with this program. Based on SWAG, Software for Aspiring Gangsters (beats AMSDOS), it gives the small-time crook with big-time aspirations the chance to shine.

It contains a database on the very best blaggers for hire, their specialities, their histories and their prices. It also has a list of fences, suitable targets, and blueprints of building plans, alarm info and all that sort of useful trivia needed for the perfect crime.

Your first job is to build up a complete picture of your intended target. There are five to work through, from a coin shop to a museum. At the outset, you've got a few thousand pounds. You have to buy information about the target, blueprints, safe details, times and so on. Once you've got that lot, it's hiring time.

The criminals available to you all have two skills, primary and secondary. They're fastest at their primary skill, quite nippy at their secondary and a bit sluggish at any others.

So if you pick someone who's a safecracker first and an electronics whizz second, he'll get a safe open in 20 seconds and disarm an alarm in 30, whereas he'd take longer to pick a lock.

Each denizen of the underworld takes a fee and a cut of the final take. Once you've hand-picked your team, it's time to go onto the planning stage.

The planning stage is carried out on the blueprint. You guide each member of the team around the plan, giving him instructions at each stage.

Each action takes time. Say you get Lefty the Locksmith to pick the front door lock (10 seconds), then move him to the back room (7 seconds) and deactivate the alarm (20 seconds), then anyone following him couldn't get in for 10 seconds, or break into a display case before 37 seconds were up.

And it's possible for people to bump into each other, and slow each other down. At this stage, you can edit the tracks you're creating and fine tune everything. But the final test comes when it's time to do the job.

During the job itself everyone goes off and follows their instructions. If there's anything you've overlooked, this is when you'll find out.

This is also the only stage where you can take an active part in things. Usually you're lookout, but you can wander around the building under attack, lending a helping hand. You can also tell everyone to run for it, if the fuzz happen past.

If all goes well, your bank account gets fatter and you're ready for the next job. Else it's into the jug for you, my lad.

All of the above is driven by ye olde joystick, with icons, menus and pointers in the best tradition. Someone send a copy to Brazil. Ronnie would love it.

Author: Ariolasoft
Price: £8.95 (tape) £14.95 (disc)

Nigel

Computer games tend to cast you on the side of the Good Guy. Not this one. A wonderfully conceived and executed (wrong word . . .) alternative management game, with nice touches of humour and dry wit.

Easy to use, but demanding of the criminal masterbrain. It would be nice to be able to edit your team members after the plan of action stage, or at least inspect their files, but that's nothing a piece of paper can't solve.

Quite a compulsive bit of criminal coding.

18/20

Liz

Just my sort of game as I've always wanted to rob a bank. That's aiming a bit high though. You need to do the smaller jobs first in order to acquire the cash to pay the bigtime bank robbers. I couldn't even manage the coin shop!

Picking your team of cliched crooks from their mug shots and credentials was great fun but I kept forgetting the driver or trying to choose men I couldn't afford.

As for the crime itself, well . . . I think the moral of the tale was I should stick to the straight and narrow – I don't think I'm cut out for a life of crime, even on the computer, but it's great fun having a go.

18/20

Colin

It's like this, boys: First ya hire da team wid da name. Then ya makes da whole thing look easy. Next thing ya know, all da schmucks is buyin' it fer Christmas. We'll make a mint !

Enter the reviewer Mafia ("There's no such thing as the Mafia"), to tell all the good people that this is almost a strategy game with graphics.

The second half is adequate, but the sprites are just a wee bit on the small side. When doing anything to a safe or door, they appear to be vigorously poking at it with their index fingers (ex programmers?). A bit limited in scope for me.

I'll stick to the real thing.

12/20

GLIDER RIDER.



This one will cheer up Guardian readers everywhere. It transpires that the Abraxas Corporation, arms manufacturers and suppliers to the large of wallet, have set up an artifical island HQ, called EoOs.

Their intention – independence from such problems as governments, moral issues and petty distractions like that.

The World Council take a dim view of this. After all, they want to sell arms to terrorists, so they have an excuse to bomb 'em to bits.

And so a bit of legitimate terrorism is needed. A hero is called for.

When Mr and Mrs White called their son Glen, they were sentencing him to a life of clean cut, square jawed heroics. Glen White. Can't be anything else but a Hero, really.

In short order, he became Commander Glen White of the Silent But Deadly (titter) squadron.

The mission, codenamed Paethon, is to infiltrate the island fortress on a motor bike cum hang glider.

Abraxas made one fatal mistake in the design of the plastic atoll – putting the power stations on the outside of the fortifications. So one man and his hand granades can blast away at these before making his way inland to destroy whatever he can.

But he only has half an hour to do his airborne best before heading out over the shark-infested sea to a waiting sub.

Movement around the island is either across the artifical grass, minding the polythene trees, or along the deserted roads that crisscross the place. All this plastic is to render the whole caboodle invisible to radar by the way. Shame about the nuclear reactors, all that shielding...

There are 10 reactors, but Glen has a weight limit of nine grenades. A little mental arithmetic reveals the discrepancy, but Abraxas have thoughtfully left little piles of pilorum around the place to even things up a bit.

So you (yes, you're Glen) have to seek these dumps out to further your objectives.

The island defences comprise 10 ground-to-air lasers, which are keen to give you a warm welcome. These are associated with pylons – brush them and the lasers become temporarily inoperative.

Ride up the nearest hillside, ride down again and when you've got your speed up pull the ol' joystick back. And you're airborne.

You can then drop your bombe surprise upon the ol' nuclear reactor and fly on to the next station. It would all be so easy if gliders handled better . . .

And when it's all over bar the glowing, you have to reconfigure your glider as a microlite aircraft and head on out over those unfriendly seas to the sub.

These action-packed adventures are depicted in bootiful 3D two colour isometricism. Together with two soundtracks (one for driving, one for gliding), and much detailed graphics, the whole lot adds up to more than a match for any hero, even one called Glen.

Author: Quicksilva
Price: £8.95 (tape) £12.95 (disc)

Nigel

'Ere, wots this? An original game? Mein Gott! It certainly seems that way. It's still a guide-a-little-man-around-a-great-big-maze type of bash, but much more than that, too. The music is magnificent, the Mode 1 detail superb, and the gamesplay tricky but accessable.

Let's ignore the rather strange sleeve notes, and just play the game. It's great fun.

18/20

Liz

I find maze games rather a bore and this proved no exception despite the impressive graphics. It's saving grace was the music. Playing against the clock conjured up a bit of excitement, as did the gliding once I'd got the hang of it.

But all in all I think I'll leave this one to the James Bond enthusiasts since the plot resembled an Ian Fleming scenario – I expected a beautiful girl to appear at any moment.

14/20

Colin

This is a game with very clever graphics and is a pretty good idea all round that has been executed well. The only thing that spoils it for me is that I find it virtually unplayable.

Now, perhaps I'm missing something, but as soon as I take off in an attempt to breach the walls of the central security area, I am immediately shot down before I've even had a chance to drop a grenade to bomb the laser positions.

Thus I have spent many a happy hour driving round the island on the motorbike or soaring about in the glider all to no avail.

Unfortunately the cassette inlay only contains a load of semi-literate drivel and is no help in explaining what to do.

11/20



LIGHT FORCE

Strange as it might seem to the novice galactic warrior, trouble always seems to crop up where you, and you alone, can sort things out. Take this latest bit of alien arrogance, for example. The colonies around Regulus have just had the heat turned up. Maybe that's why the colonies are called the Regulo 5.

Anyway, the news came flying out of the system; "Ships of unknown origin landing at key installations!". And of course this sort of thing can't go unpunished. So the GEM council, more fond of sticks than carats, send their entire space force in the Regulus sector into action.

Entire in this case means one ship, one heavily armed, razor sharp, Lightforce fighter. Manned, as these things have a tedious habit of being manned, by one razor sharp, top gun, spacer. To wit, you. Surprised? Not half as dumbfounded as you will be when you pop out of warp-space beyond the outermost Regulan planet to find...

Klingons! Oooopsss.... wrong game. Well, they might be Klingons. I seem to recall they were good buddies of the Romulans. But the exact identity of the thousands of battle-ready alien ships waiting to turn you into so many sub-atomic particles and the occasional high energy Hertzian waveform (why didn't you become a bus conductor, like your mum wanted?) is never revealed. But their hundreds of ground based weapon installations and energy domes,(and gas rings, eye level grills, eezee-wype hobs and selfcleaning ovens. Regulo 5, remember) are most certainly revealed.

The aliens (recently privatised) also have no intent of trying to hide the host of special armaments pods (SAPs?) that idly orbit each planet, evil glinting lightly from each beweaponed craft.

The odds, needless to say, are stacked heavily against you. But you have one small advantage. The aliens, apart from their obvious technical prowess in producing devices of unimaginable destruction, are incredibly thick. Mind-numbingly moronic. Strategic simpletons. Seeing that they have a numerical advantage of several thousand to one, you might think that they would send swarms of ships to outnumber you. Nope. Eight at once is the absolute maximum, more usually it's two or six.

And then there's the not insignificant fact that your megazappo lasers point forwards only. If they were to send just one lightly buttered liferaft with a peashooter up behind you, you would be so much deceased waterfowl. This too seems to have missed the miscreants' minds, as does the idea of actually firing on you from those ground installations.

But perhaps all this is just as well, as you would be dead in a jiffy otherwise (technical note: A jiffy is the smallest unit of time, the time in which the universe came into being, a temporal quantum. Really). As it stands, you have a small but finite chance of removing the evil that is infesting Romulan space. And, more important, getting your name on the high score table.

Author: FTL
Price: Cassette £8.95

Nigel

So, with only your trusty joystick between you and oblivion, forth you sally. There's an entire solar system to dealienise before lunch.

It's not often that a game comes along (or, in this case pops out of hyperspace) that one can say, hand on heart, is the best of it's kind. This is one. A zapperoonie of such epic proportions that it seems churlish to criticise it.

If you ever spent an evening playing Space Invaders, you'll spend a week crouched over Lightforce. I did. Some might say it lacks subtlety. Some might say it's simplistic. True, but who cares?

19/20

Liz

I'll bet one of the other two have already mentioned Sorceryesque graphics, so I won't. However, if you ever wanted to see just how good a game's graphics can be buy a copy of Lightforce.

I suppose the idea of the game isn't exactly original, being part Invaders and part Galaxians with a scrolling backdrop. Be this as it may, this could well be the definitive mindless, blast it if it moves and blast it if it doesn't type of game.

It's a bit of shame that the joystick doesn't auto repeat, in fact I've already gone through one joystick's fire button.

19/20

Colin

Colourful wee beastie is this. Plenty to shoot up, and not too much of it shooting back.

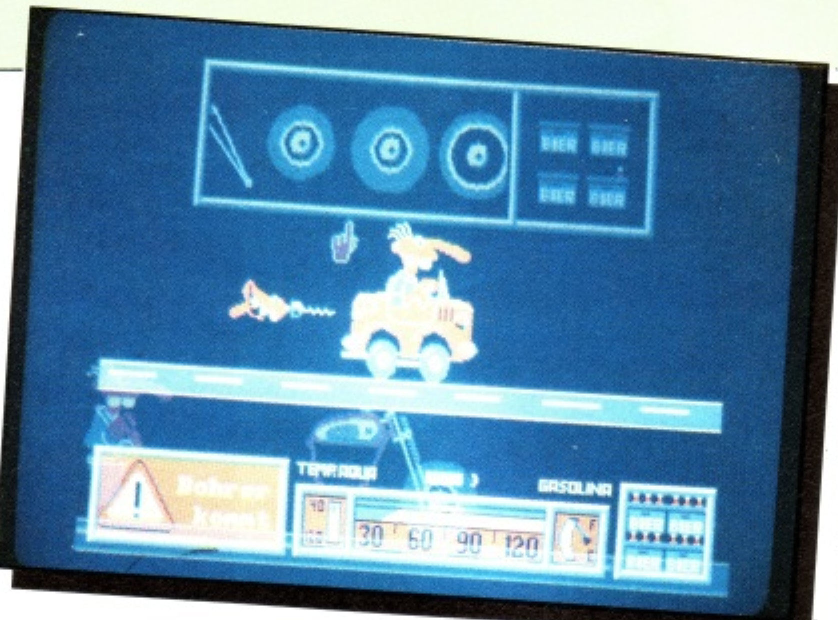
The background looks like a cross between an art nouveau universe and an organic chemistry lesson to start with, but has more than enough variety later on to stop me wingeing about it. Also the pretty pictures are recognisable on a green screen.

Now the bad news: When things start to get hectic the lovely sprites slow down. Mass enemy telekenesis also seems to jam your guns, even with an autofire.

Problems apart, can't decide whether to waste my time on this one or Moon Cresta. Ah well, I'll just have to alternate, then.

19/20

WERNER – MACH HIN!



Isn't the EEC eine wunderbar thingy, herren. Ariolasoft, der maison du ware du soft, has brought out der Eurocomputergamen fur kinderspiel.

Werner, Mach Hin!(it means Werner, hurry up!) is the first manifestation on our shores of German comic hero Werner. This man is much taken with beer, motorbikes and dice, and your task is to help in exploits related to all three.

There are five games on the disc (four on cassette). The first is called, um, cough, Diddling with Werner. There, I've said it now. It's a dice game (what else?), involving 13 beer mats and some aluminium cups.

The object seems to be to force beer mats on an opponent by outbluffing him as to the results of a dice throw. Werner, in this game, is a very large cartoon face who frowns, leers and peers suspiciously at one and all.

The next game is a bit closer to my heart. With a snappy title like "Who will bring the biggest bulk of bottles to the party" (you should see it in German . . .), it can't go wrong.

Werner is taking four crates of beer to a party in his car, but various common hazards conspire against him.

Who can honestly say he's never encountered flying melons, manic drills (wildgewordene Bohrmaschine), jack-in-the-boxes with condensor (hein?) and the omnipresent ignition key extractor on the road? All the above drain Werner of beer and you defend him by moving the car out of harm's way.

And then there's something reminiscent of the Generation Game, called Werner's Panic Trip. Werner continues along in his car, dodging flying melons, and has to pick up roadside objects. Some of these, like bombs, are more trouble than they're worth so a snappy decision is needed as the bits whizz past.

Next on the itinerary – motorbike manufacture. In best jigsaw puzzle fashion you select pieces out of a huge pile of mechanical mayhem and produce a bike.

As there's enough bits to make four or five, you have to have a keen eye for the right parts for the frame you've chosen. An attempt to make an inappropriate bit fit causes Werner to scratch his head in consternation. He then needs a bottle of beer to calm himself down, and if you run out of beer, then he's off.

When you finally manage to piece together a plausible motorcycle, Werner leaps on it and drives away. But it has to pass muster, as two traffic cops cast critical eyes over it and cause trouble if anything's not just so.

The last game (disc only), is the Drive Through Fog. Atop the motorbike, Werner whizzes down the autobahn. As fog closes in you're responsible for making sure that he doesn't impinge on any large objects (like lorries) that just happen to be sharing the road with him. With visibility variable, it ain't easy.

Author: Ariolasoft
Price: £8.95 (tape) £14.95 (disc)

Colin

Werner, or rather "Semmel-Verlach/Grslsch Advertising Campaign II", seems to have very little in the way of instructions apart from the bit on diddling.

Take any roms you might have off the back of your machine, 'cos it disagreed with my Protext.

Knowing a little German, I delved into the instructions. Just as vague, except the words 'Up s**t creek' (my stars) seem to have crept into the English version.

The graphics are clear, smooth (except the bike-building bit) and inevitably subtitled in something that isn't English and bears little resemblance to German either. This is independent of whether German or English is selected.

It's a great shame they don't tell you how to play it.

8/20

Liz

Werner is a strange mess of potage. He's something of a minor cult in Germany comic-wise, and the games in this collection seem to be trying to emulate a comic strip.

The piccies are really good and when that guy scowls (you would if you'd just got a melon in the face) it's purest slapstick. But the game content and the home-translated instructions are still one of life's stranger mysteries.

Perhaps Arthur C. Clarke could shed some light on the matter. More fun when drunk, methinks.

15/20

Nigel

If you want a change from zapping aliens or spending hours wandering round mazes this could be the game for you. Werner, the most appealing computer character I've come across, prefers a drinking and gambling lifestyle to attacking everything in sight, one which I can empathise with.

The different games are therefore concerned with Werner's interests and though they're rather odd and confusing to play the graphics make up for these inadequacies especially on Drive Through Fog (the final game on the disc).

As long as you've got a better idea than me about building a motorbike you should be OK!

16/20

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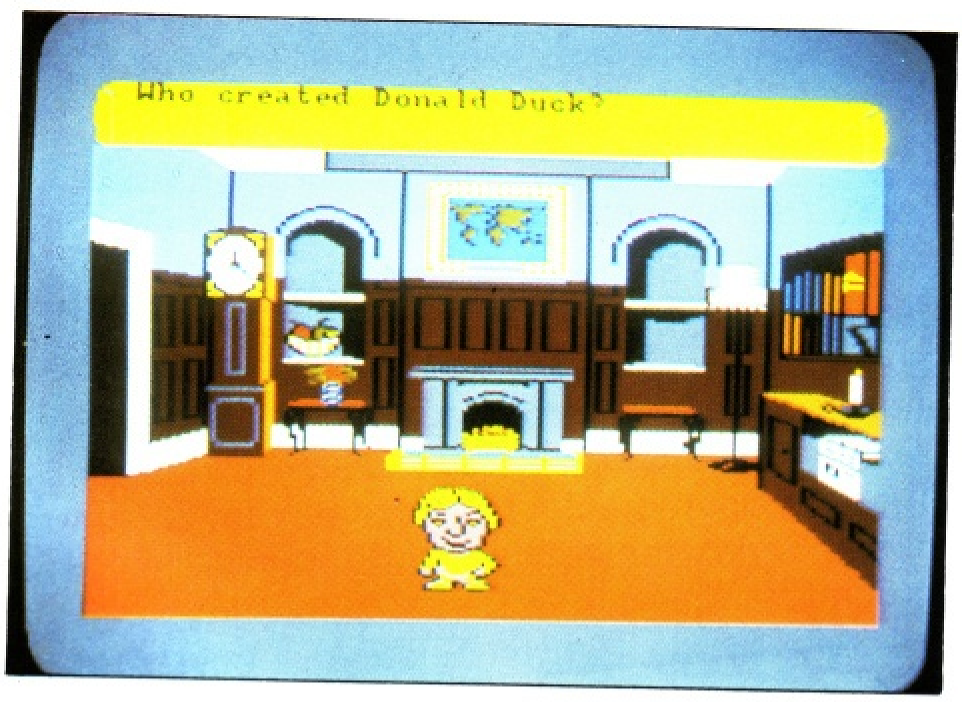


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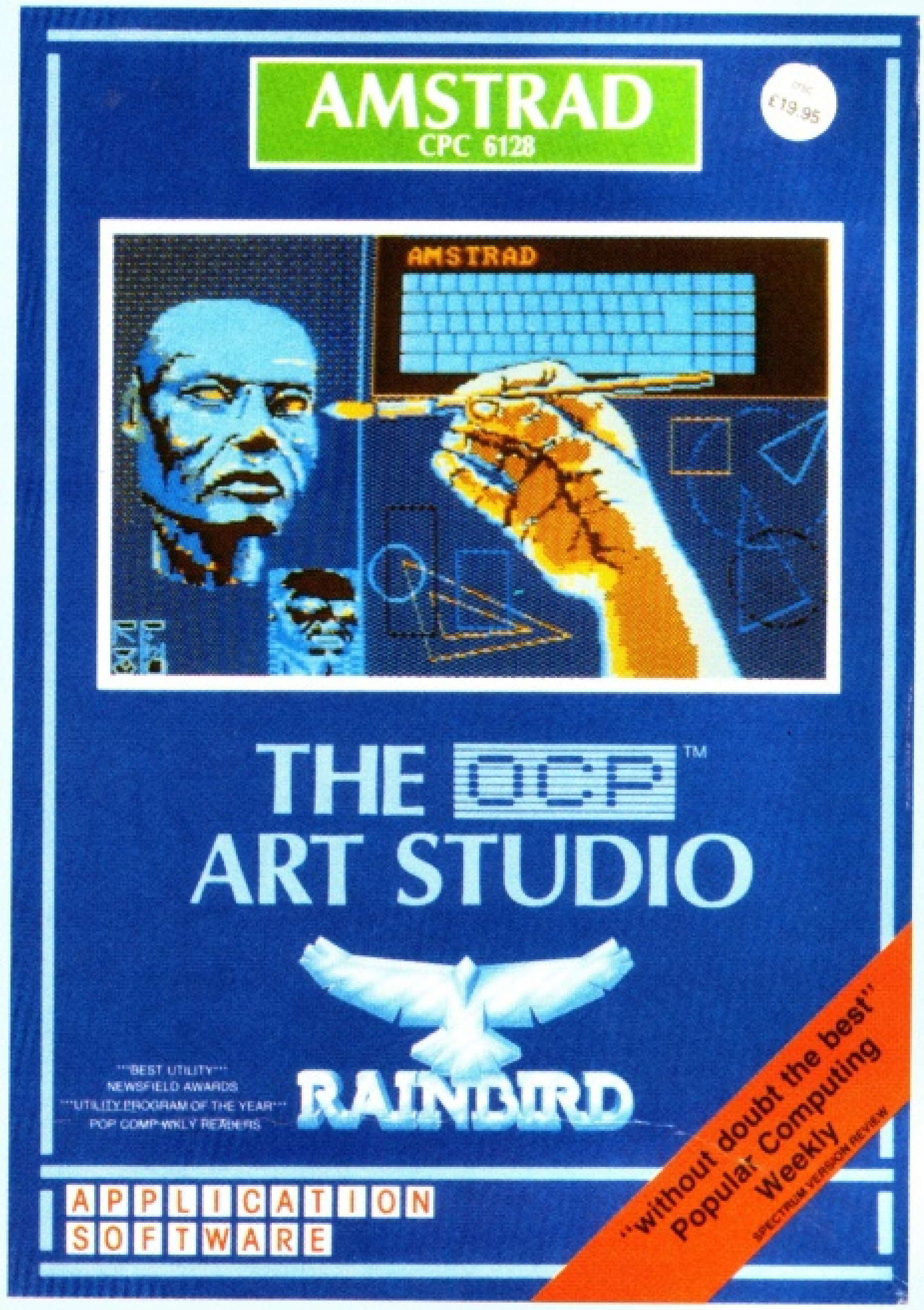
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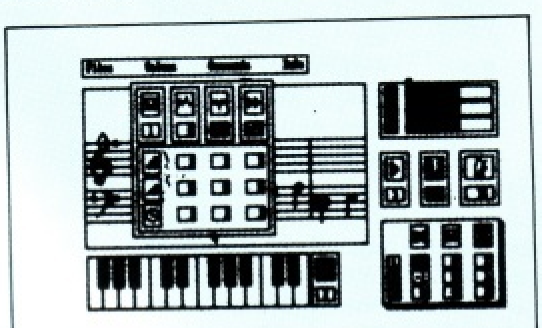


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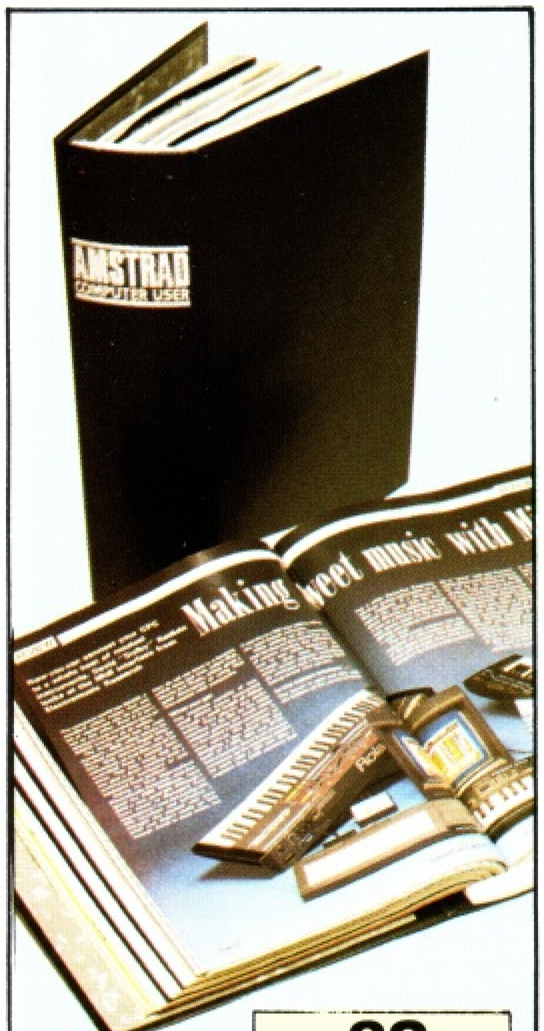
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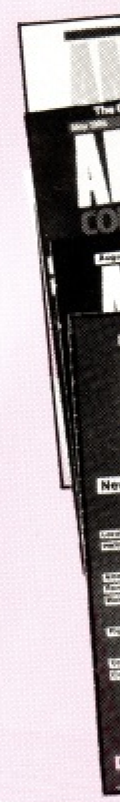
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The Least Significant Bit

It's a hard life in the micro world. Hectic, harassed, and hard. Nobody expects any sympathy, which is just as well, as there's precious little available to go around. Let's take two recent examples . . .

A noted software house hired the London Dungeons to launch a new game. Now product launches are usually akin to throwing meat to piranhas; the assembled computer journalists (or so they like to be called) consume the obligatory free food and booze with gusto, and swap stories like this with everybody they haven't seen since the last beano. Which was probably at least two days ago.

If the people shelling out for this extravaganza are lucky the sated hacks won't leave the information packs on the tube on the way home, and the new megagame joystick company might get a mention in next month's comics.

The game (remember?) was heavily based on magic, ghoulies and black magic. So, with the usual catatonic creativity such things deserve, the dungeons were festooned with cobwebs, wizards, monsters and the occasional stuffed rat.

Now for some reason one of the journos present took a shine to a taxidermified rodent and swiped it. This sort of thing is almost traditional, but rats cost real money, even the dead kind. It fell upon one of the company minions to try and retrieve the rat.

"You can't leave until you give me my rat back", he said to one and all. "Sorry, but I've only got a badger" and "Ere, can you do me a stoat?" one and all replied. The worst part came later, when he had to explain to an unsympathetic manager exactly what that £150 went on. He's since been demoted to gerbils.

See what we mean about sympathy? And even now, in a remote part of trendy London, squeek-squeek noises are met with floods of tears.

I'm RGB, fly me

Not that junkets are entirely without mishap for the junketeers. An executive for an American computer company (let's call them Commode; it's close enough) had to get a prototype colour monitor across the States. Over here, of course, good ol' BR would take it. But Stateside do things differently. The exec decided to accompany it as it flew coast to coast. He even booked it a seat (economy class) close to his (Clipper class).

At this point a few facts about airline seat classes wouldn't go amiss. Economy class seats are a little cramped, the service is so-so and sustenance comes extra. Clipper class is refined, roomy and relatively well fed. The important thing to note is that Economy is smaller than Clipper.

Another little known fact: American executive cardboard boxes are wider than American executive bums. Guess who got the Clipper class. At least the box was in tip-top shape when it hit New York. But the executive managed a passable red, blue and green in front of his boss. Another one for the gerbils.

Cool comfort

By the time you read this it will probably all have blown over. Fans, or the lack of them, have hit the headlines. Nobody's ever stood up and said that they had a PC1512 that melted, but these things will go round. So to keep the punters (as users are affectionately known) happy little electric fans have been fitted to the more expensive models. Purely a marketing decision, said Alan Sugar, who, let's face it, does know about marketing decisions.

He went on: "If the users wanted pink spots on the side we'd do that, too. What's the point of me banging my head against a brick wall saying you don't need the damn fan, sunshine?". Shortly after that little bit of Eastern wisdom made the press a number of PCs at Amstrad's Brentwood HQ sprouted Chinese fans and lots of little sticky labels. Sprayed pink.

The fact that no one has yet made gerbil minder over this is taken in some quarters to indicate that Mr Sugar is not totally devoid of humour, as many people believe. LSB would like to settle the issue, but unfortunately we've got this press launch to attend . . .

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